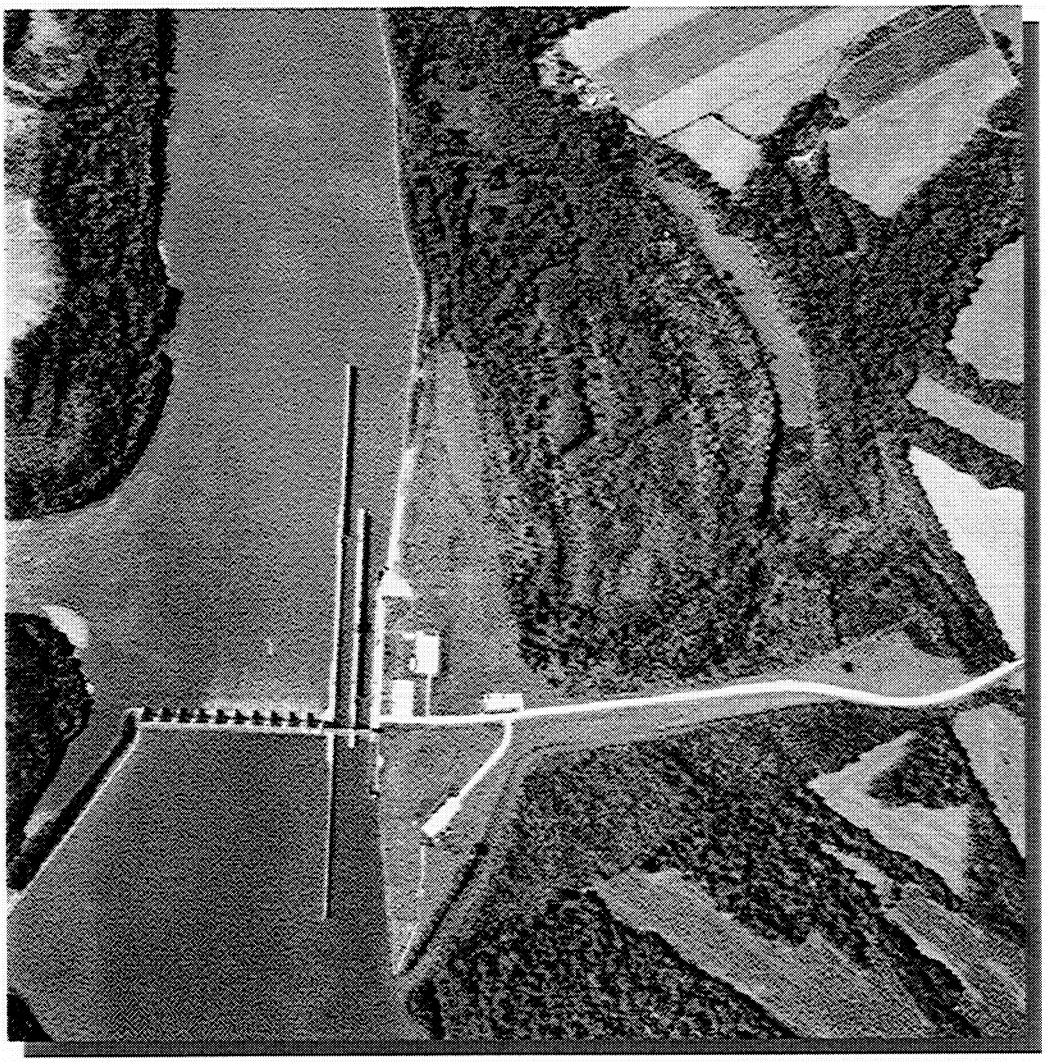
J.T. Myers Locks Improvements

Part A-4. Wetland Delineation

WETLAND DELINEATION
OHIO RIVER
J. T. MYERS LOCKS AND DAM
POSEY COUNTY, INDIANA



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Submitted by

GEC
Gulf Engineers & Consultants

Baton Rouge, Louisiana

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Gulf Engineers & Consultants

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Draft Report

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GEC Project No. 27321217

WETLAND DELINEATION
OHIO RIVER
J. T. MYERS LOCKS AND DAM
POSEY COUNTY, INDIANA

Prepared for

U.S. Army Corps of Engineers
Louisville District
Louisville, Kentucky

Prepared by

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Baton Rouge, Louisiana

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POSEY COUNTY, INDIANA

INTRODUCTION

On March 22, through March 24, 1999, G.E.C., Inc. (Gulf Engineers and Consultants) conducted a routine wetland delineation for the U.S. Army Corps of Engineers (USACE) on an approximate 300-acre tract north of and adjacent to the J.T. Myers Lock and Dam located on the Ohio River at approximate river mile 846 (Figure 1). The purpose of this work is to identify potential wetlands and to provide the USACE a map showing the limits of wetlands present on the above referenced parcel. This work was conducted under Contract No. DACW27-97-D-0013, Delivery Order No. 0017.

METHODOLOGY

G.E.C. conducted the wetland delineation in accordance with Section D, Subsection 2 of Technical Report Y-87-1, Corps of Engineers Wetlands Delineation Manual. Aerial photography, Natural Resources Conservation Service (NRCS), Posey County, soil survey maps (Figure 2), and U.S. Geological Survey (USGS) topographic quadrangle maps were reviewed prior to the initiation of field work to identify the potential extent of wetlands present on the subject property.

In order to insure adequate coverage of the site, seven equidistant transects were traversed through the property in a general northeast/southwest direction using the Ohio River as a baseline. Transects were spaced at approximately 770-foot intervals throughout the site. Initially, eight transects were established, however during the field investigation, transects one and two were combined as there was not a sufficient change in the plant community east of the J.T. Myers access road to warrant two transects.

Routine Wetland Delineation Data Forms (Appendix A), as approved by Headquarters, USACE 3/92, were completed for each vegetation community encountered throughout the site, with the exception of those areas, which were inundated greater than 24 inches. These data forms contain sufficient information regarding the presence or absence of hydric soils, hydrophytic vegetation, and wetland hydrology, to support the demarcation of a wetland boundary. The location of each sample site is shown on the Wetland Location Map (Figure 3).

Dominant vegetation was recorded on the data forms along with the indicator status as listed in the *National List of Plant Species Occurring in Wetlands (Region 3)* published by the U.S. Fish and Wildlife Service. Indicators are described in Table 1.

Dominant vegetation was then evaluated and if more than 50 percent of the dominant vegetation had an indicator status of FAC, FAC+, FACW, or OBL, the hydrophytic vegetation criterion was recorded as being met.

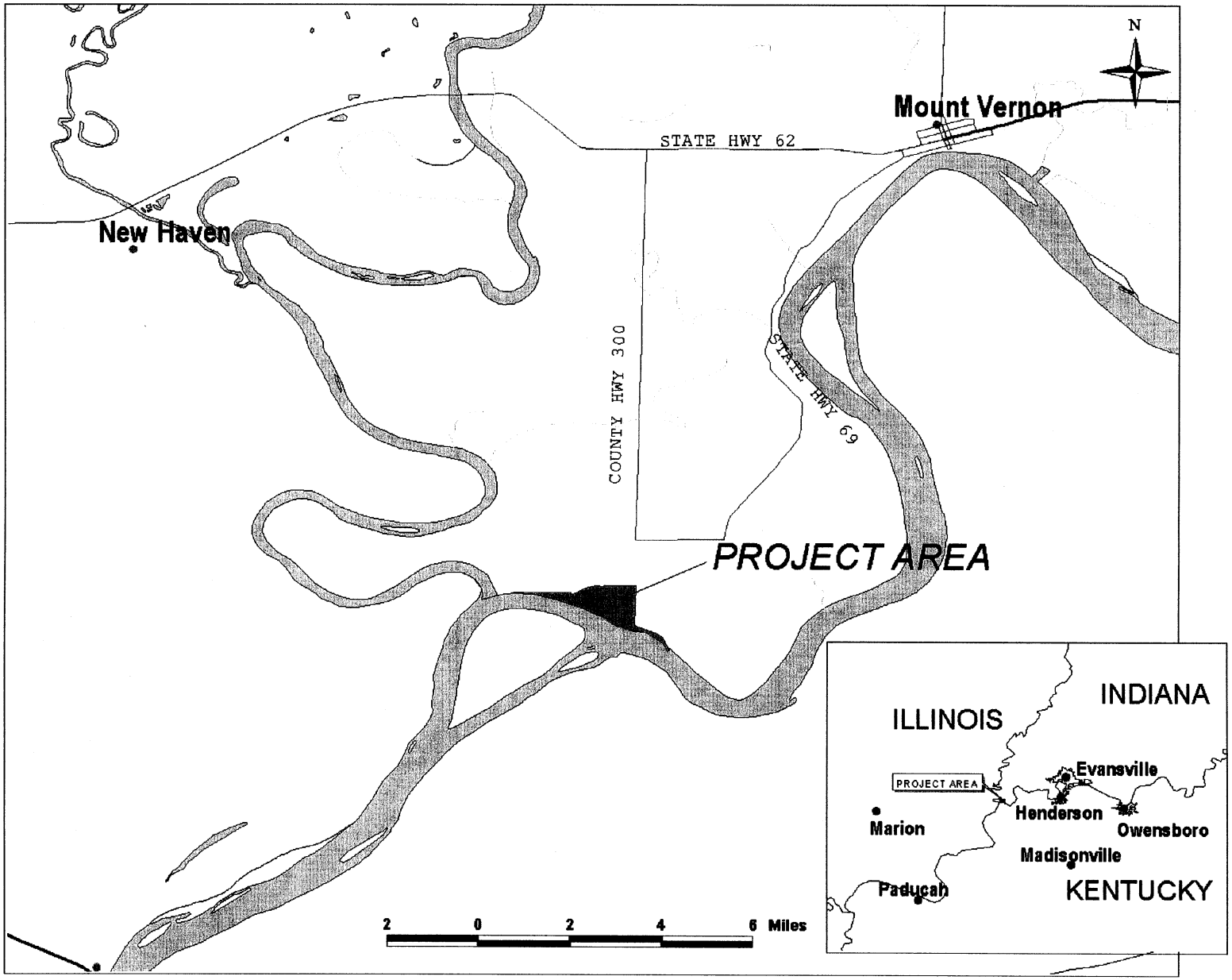
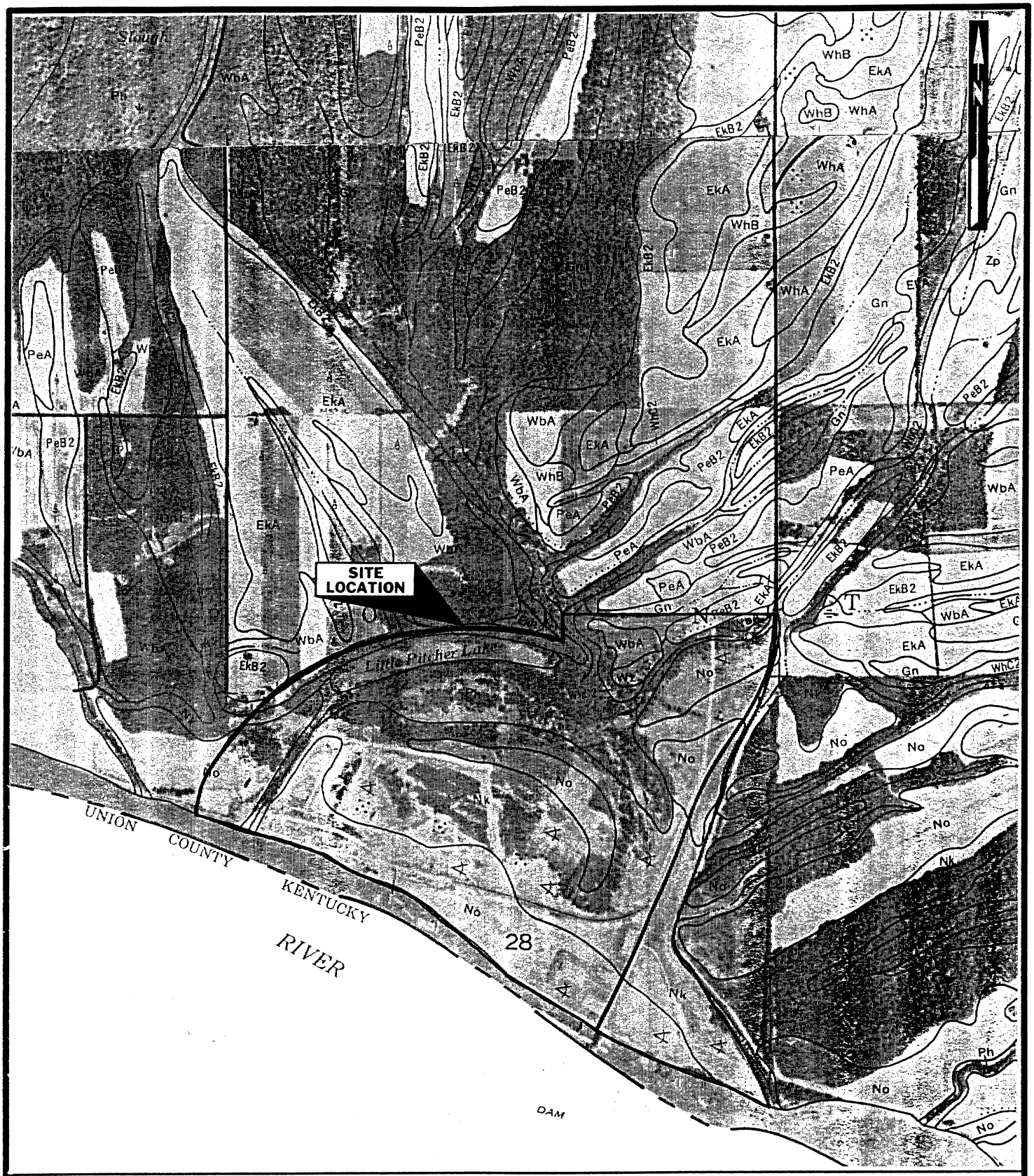


Figure 1. Location of J.T. Myers Locks and Dam



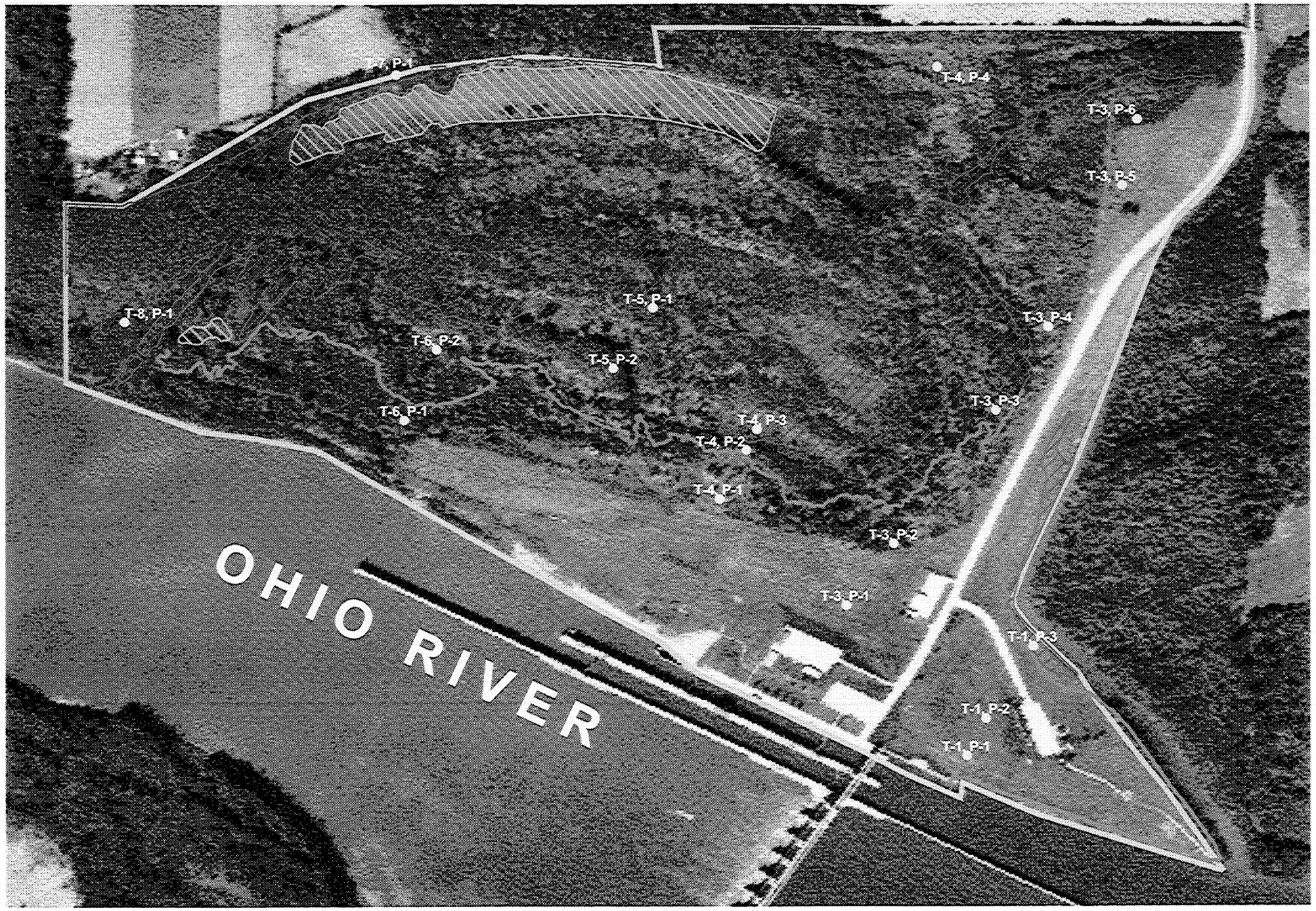
SOIL SURVEY MAP

J. T. Myers Lock and Dam
Wetland Delineation

NRCS, Soil Survey of Posey County, Indiana, 1979, Sheet 69

GEC
Gulf Engineers and Consultants

Figure No:	2
Date:	May 6, 1999
Scale:	1:15,840
Source:	NRCS/GEC



Legend

- Sample Sites
- 347' Contour Line
- Open Water
- Wetland Boundary
- GEC Investigation Boundary

N

500 0 500 1000 Feet

J. T. MYERS LOCK AND DAM
PRELIMINARY WETLAND LOCATION MAP

GEC
Gulf Engineers & Consultants

Figure No.: 3
Date: March 1999
Scale: 1:10,440
Prepared by: WAB

Table 1. Plant Indicator Status Categories

Plant	Status	Description
Obligate Wetland Plants	OBL	Plants that occur almost always (estimated probability >99%) in wetlands under natural conditions, but which may also occur rarely (estimated probability <1%) in nonwetlands.
Facultative Wetland Plants	FACW	Plants that occur usually (estimated probability >57% to 99%) in wetlands, but also occur (estimated probability 1% to 33%) in nonwetlands.
Facultative Plants	FAC	Plants with a similar likelihood (estimated probability 33% to 67%) of occurring in both wetlands and nonwetlands.
Facultative Upland Plants	FACU	Plants that occur sometimes (estimated probability 1% to <33%) in wetlands, but occur more often) (estimated probability >67% to 99%) in nonwetlands.
Obligate Upland Plants	UPL	Plants that occur rarely (estimated probability <1%) in wetlands, but occur almost always (estimated probability >99%) in nonwetlands under natural conditions.

A soil pit was excavated to a depth of approximately 18 inches at each sample site. The pit remained open for at least 15 minutes to allow the pit to fill with water, if present. Soil profiles were characterized with the information recorded on the data forms including soil colors (hue, value, and chroma as per the 1992-revised edition of the Munsell Color Chart); size, color, abundance, and depth of mottles; and soil texture. Soil texture was determined using the "texture by feel" analysis.

G.E.C. obtained seven and 15 day flooding profiles for the site from the USACE. These profiles were generated using stream gauge data obtained at the J.T. Myers Lock and Dam along the Ohio River. The profiles represent the minimum water levels for riverine flooding sustained for periods of seven and 15 days, at least once every two years (50 percent chance) during the growing season. If during the field investigation, field characteristics of soils (specifically soil colors) were not indicative of hydric soils, and the hydrophytic vegetation and the wetland hydrology criteria were met, the elevation of the sample site was used to determine if the soils were hydric based on inundation period. If a sample site was inundated for at least seven consecutive days during the growing season, the soils could be considered a hydric soil. Evidence of hydrology alterations on-site were also considered when making a hydric soils determination using the flooding profiles.

Wetland hydrology indicators were also recorded at each sample site as per the USACE requirements. If at least one primary or two secondary wetland hydrology indicators were present, the sample site was classified as having wetland hydrology. A sample site requires the presence of all three wetland parameters (dominance of hydrophytic vegetation, hydric soils, and wetland hydrology) for the area to be considered a wetland.

Photographs were taken at each point where a data form was completed, as well as at potential Waters of the U.S. sites. These photographs show a representative soil profile and an overview of each sample site (Appendix B).

Once G.E.C. had collected sufficient data to document wetland/non-wetland communities, the wetland boundary was established using fluorescent pink "WETLAND DELINEATION" flagging. G.E.C. mapped the boundary using a global positioning system (GPS). GPS equipment included the Trimble Pro XRS receiver with the Trimble TDC1 Asset Surveyor logging real-time corrected positions with sub-meter accuracy (depending on vegetation canopy cover).

RESULTS

The following subsections describe the different plant communities, soil conditions, and hydrological conditions observed during the investigation.

Sample Site T-1, P-1: Sample site T-1, P-1 was located in an open area east of the J.T. Myers Lock and Dam access road. Dominants in the herbaceous stratum included rough cockle-bur *(Xanthium strumarium)*, and *Desmodium* sp. No sapling shrub or tree strata were present at this sample site. One hundred percent of the dominant vegetation had an indicator status of OBL, FACW, or FAC; therefore, the hydrophytic vegetation criterion was met.

The soil series mapped at this sample site is the Newark silty clay loam. This soil series was confirmed during the field investigations, and is listed as a Hydric Soil of the United States. However, field indicators of hydric soils (soil colors) were not present during the field investigation. Based on the stream gauge data, this area is not inundated for at least seven consecutive days during the growing season; therefore, soils at this sample site were considered to be non-hydric. Primary wetland hydrology indicators were observed during the investigation and included saturation in the upper 12 inches, water marks, drift lines, and sediment deposits, with secondary wetland hydrology indicators including local soil survey data. It is G.E.C.'s opinion that this area is not a wetland (see Data Form T-1, P-1).

Sample Site T-1, P-2: Sample site T-1, P-2 was located approximately 408 feet northeast of T-1, P-1 in an open area. This area is frequently mowed and the only vegetation stratum present was the herbaceous stratum. The grass present was not identified during the survey.

The soil series mapped at this sample site is the Newark silty clay loam series. This soil series was confirmed during the field investigations, and is listed as a Hydric Soil of the United States. However, field indicators of hydric soils were not present during the field investigation and based on the stream gauge data, this area is not inundated for at least seven consecutive days during the growing season; therefore, soils at this sample site were considered to be non-hydric. The only primary wetland hydrology indicator present was drift lines. No secondary wetland hydrology indicators were observed at this sample site. It is G.E.C.'s opinion that this area is not a wetland (see Data Form T-1, P-2).

Sample Site T-1, P-3: Sample Site T-1, P-3 was located approximately 485 feet northeast of T-1, P-2. This community is also an open grassland, however, this area is slightly lower topographically and a noted change in species composition was observed. Dominants in the herbaceous stratum included *Panicum* sp., and *Erigeron* sp. No sapling shrub or tree strata were present at this sample site. Based on the time of the year, there were not sufficient plant characteristics to determine the species of dominant plants. However, based on the presence of wetland hydrology, and hydric soils (as shown in the following paragraph) the vegetation community was assumed to be hydrophytic.

The soil series mapped at this sample site is the Nolin silt loam series. This soil series was confirmed during the field investigation, and is listed as a Hydric Soil of the United States. Although field indicators (soil colors) of hydric soils were not present during the field investigation, stream gauge data showed that this area is inundated for at least seven consecutive days during the

growing season; therefore, soils at this sample site were considered hydric. Primary wetland hydrology indicators included saturation in the upper 12 inches, and sediment deposits, with secondary wetland hydrology indicators including oxidized root channels in the upper 12 inches, and local soil survey data. It is G.E.C.'s opinion that this sample site is located within a wetland (see Data Form T-1, P-3).

Sample Site T-3, P-1: Sample Site T-3, P-1 was located approximately 700 feet northeast of the Ohio River in a prairie community. This area was planted by the USACE as a restoration project and is routinely mowed or burned to maintain the early successional stage of the prairie. Dominants included big bluestem (*Andropogon gerardii*), fox-tail bristle grass (*Setaria italica*), and *Panicum* sp. in the herbaceous stratum. No sapling shrub or tree stratum was present at this sample site. The hydrophytic vegetation criterion was not met at this sample site.

The soil series mapped at this sample site is the Newark silty clay loam. The soil survey map indicates that the area is within a cut and fill zone, i.e., that there has been some disturbance of the natural soils in the past. This soil series was confirmed during the field investigations, and is listed as a Hydric Soil of the United States. However, field indicators (soil colors) of hydric soils were not present during the field investigation. Based on stream gauge data, this area is not inundated for at least seven consecutive days during the growing season; therefore, soils at this sample site were considered to be non-hydric. No primary or secondary wetland hydrology indicators were observed at this sample site during the investigation. It is G.E.C.'s opinion that this area is not a wetland (see Data Form T-3, P-1).

Sample Site T-3, P-2: Sample site T-3, P-2 was located approximately 421 feet northeast of T-3, P-1 in a bottomland hardwood (BLH) community. Dominant vegetation included cottonwood *(Populus deltoides)*, common hackberry (*Celtis occidentalis*), and silver maple (*Acer saccharinum*) in the tree stratum with silky dogwood (*Cornus amomum*), and *Carya* sp. dominating the sapling shrub stratum. Dominants in the woody vine stratum included muscadine grape (*Vitis rotundifolia*), and poison ivy (*Toxicodendron radicans*). There was no herbaceous stratum present at this sample site. Eighty-three percent of the dominant vegetation has an indicator status of OBL, FACW, or FAC; therefore, the hydrophytic vegetation criterion was met at this sample site.

The soil series mapped at this sample site is the Nolin silt loam. This soil series was confirmed during the field investigations, and is listed as a Hydric Soil of the United States. However, field indicators (soil colors) of hydric soils were not present during the field investigation. Based on stream gauge data, this area is not inundated for at least seven consecutive days during the growing season; therefore, soils at this sample site were considered non-hydric. Primary wetland hydrology indicators included water marks, drift lines, and sediment deposits, with secondary wetland hydrology indicators including water stained leaves, a positive FAC-Neutral test, and local soil survey data. It is G.E.C.'s opinion that this sample site is not located within a wetland (see Data Form T-3, P-2).

Sample Site T-3, P-3: Sample Site T-3, P-3 was located approximately 900 feet northeast of T-3, P-2 in a BLH community. This sample site was located on the edge of a relict river scar that appears to drain into Pitcher Lake to the west. This area is topographically lower then the adjacent community and receives surface runoff during periods of heavy rain. Dominants in the tree stratum include

cottonwood and red maple (*Acer rubrum*). Green ash (*Fraxinus pennsylvanica*), red maple, and poison ivy dominated the sapling shrub stratum. There were no dominant woody vine species present at the time of the survey and due to the degree of inundation (approximately 24 inches); no herbaceous stratum was observed. One hundred percent of the dominant vegetation has an indicator status of OBL, FACW, or FAC; therefore, the hydrophytic vegetation criterion was met at this sample site.

The soil series mapped at this sample site is the Newark silty clay loam. The soil survey map indicates that the area is within a cut and fill zone. This indicates that there has been some disturbance of the natural soils in the past. A soil sample was not obtainable at this sample site due to the degree of inundation; therefore, the soil series was not confirmed. Stream gauge data showed that this area is inundated for at least seven consecutive days during the growing season. The soils at this sample site were considered to be hydric based on the period of inundation during the growing season. Primary wetland hydrology indicators present included inundation, saturation in the upper 12 inches, water marks, drift lines, sediment deposits, and drainage patterns in wetlands. Secondary wetland hydrology indicators included water stained leaves, local soil survey data, and a positive FAC-Neutral test. It is G.E.C.'s opinion that this area is located within a wetland (see Data Form T-3, P-3).

Sample Site T-3, P-4: Sample Site T-3, P-4 is located approximately 532 feet northeast of T-3, P-3 in a scrub shrub community. This sample site is higher topographically than the BLH community to the west and south. Dominant vegetation included honey locust (*Gleditsia triacanthos*) in the tree stratum, and common persimmon (*Diospyros virginiana*) and common hackberry in the sapling shrub stratum. Poison ivy dominated the herbaceous stratum. Seventy-five percent of the dominant vegetation has an indicator status of OBL, FACW, or FAC. The hydrophytic vegetation criterion was met at this sample site.

The soil series mapped at this sample site is the Nolin silt loam. This soil series was confirmed during the field investigations, and is listed as a Hydric Soil of the United States. However, field indicators (soil colors) of hydric soils were not present during the field investigation. Based on stream gauge data, this area is not inundated for at least seven consecutive days during the growing season; therefore, soils at this sample site were considered to be non-hydric. No primary or secondary wetland hydrology indicators were observed at this sample site. It is G.E.C.'s opinion that this sample site is not located within a wetland (see Data Form T-3, P-4).

Sample Site T-3, P-5: Sample Site T-3, P-5 is located approximately 880 feet northeast of T-3, P-4 in a fallow field in the northeastern portion of the area investigated. The only stratum present was the herbaceous stratum with dominants including fox-tail bristle grass, and big bluestem. The hydrophytic vegetation criterion was not met at this sample site.

The soil series mapped at this sample site is the Nolin silt loam. This soil series was confirmed during the field investigations, and is listed as a Hydric Soil of the United States. Field indicators (soil colors) of hydric soils were not present during the field investigation. Based on stream gauge data, this area is not inundated for at least seven consecutive days during the growing season. Based on the period of inundation during the growing season, the soils at this sample site were considered to be non-hydric. No primary or secondary wetland hydrology indicators were observed at this

sample site. It is G.E.C.'s opinion that this sample site is not located within a wetland (see Data Form T-3, P-5).

Sample Site T-3, P-6: Sample Site T-3, P-6 is located approximately 387 feet northeast of T-3, P-5 in a sweetgum thicket. Dominant vegetation in the tree stratum included sweetgum *(Liquidambar styraciflua)* with sweetgum, osage orange (*Maclura pomifera*), *Rubus* sp., and *Craetagus* sp. dominating the sapling shrub stratum. Poison ivy was the only dominant in the woody vine stratum. Seventy-five percent of the dominant vegetation has an indicator status of OBL, FACW, or FAC. The hydrophytic vegetation criterion was met at this sample site.

The soil series mapped at this sample site is the Nolin silt loam. This soil series was confirmed during the field investigations, and is listed as a Hydric Soil of the United States. Field indicators (soil colors) of hydric soils were not present during the field investigation. Based on stream gauge data, this area is not inundated for at least seven consecutive days during the growing season; therefore, soils at this sample site were considered to be non-hydric. Saturation in the upper 12 inches was the only primary wetland hydrology indicator present. One secondary wetland hydrology indicator, a positive FAC-Neutral test, was recorded. It is G.E.C.'s opinion that this sample site is not located within a wetland (see Data Form T-3, P-5).

Approximately 200 feet north of T-3, P-6, a drainage channel was encountered. The channel trends in a northeast/southwest direction and was inundated at the time of the survey. Dominant vegetation included buttonbush (*Cephalanthos occidentalis*) black willow (*Salix nigra*), and pumpkin ash (*Fraxinus profunda*) along the fringe of the channel. Wetland hydrology indicators observed included inundation, watermarks, drift lines, and sediment deposits. This area was flagged and mapped as a wetland.

Sample Site T-4, P-1: Sample Site T-4, P-1 is located approximately 854 feet northeast of the Ohio River in a scrub shrub community which is north of the prairie in the southern portion of the site. Dominant vegetation included common hackbery, cottonwood, and greenash in the sapling shrub stratum, with poison ivy dominating the herbaceous stratum. Seventy-five percent of the dominant vegetation has an indicator status of OBL, FACW, or FAC; therefore, the hydrophytic vegetation criterion was met at this sample site.

The soil series mapped at this sample site is the Newark silty clay loam. The soil survey indicates that the area is within a cut and fill zone, i.e., that there has been some disturbance of the natural soils in the past. This soil series was confirmed during the field investigations, and is listed as a Hydric Soil of the United States. However, field indicators (soil colors) of hydric soils were not present during the field investigation. Based on stream gauge data, this area is not inundated for at least seven consecutive days during the growing season. The soils at this sample site were considered to be non-hydric based on the period of inundation during the growing season. No primary wetland hydrology indicators were observed at the sample site and the only secondary wetland hydrology indicator recorded was a positive Fac-Neutral test. It is G.E.C.'s opinion that this area is not located within a wetland (see Data Form T-4, P-1).

Sample Site T-4, P-2: Sample Site T-4, P-2 is located approximately 307 feet northeast of T-4, P-1 in a red maple community. This community is approximately 25 to 50 feet wide and the tree stratum

is predominately red maple. Poison ivy dominated the sapling shrub stratum, with muscadine grape, and Alabama supple-jack (*Berchemia scandens*) dominating the woody vine stratum. One hundred percent of the dominant vegetation has an indicator status of OBL, FACW, or FAC. The hydrophytic vegetation criterion was met at this sample site.

The soil series mapped at this sample site is the Newark silty clay loam. The soil survey indicates that the area is within a cut and fill zone, i.e., that there has been some disturbance of the natural soils in the past. This soil series was confirmed during the field investigations, and is listed as a Hydric Soil of the United States. Field indicators (soil colors) of hydric soils were not present during the field investigation. Based on stream gauge data, this area is not inundated for at least seven consecutive days during the growing season; therefore, soils at this sample site were considered to be non-hydric. Primary wetland hydrology indicators were observed at the sample site and included watermarks, drift lines, and sediment deposits. Secondary wetland hydrology indicators included water stained leaves and a positive Fac-Neutral test. This community appears to be located within a transition zone from non-wetland to wetland and it is G.E.C.'s opinion that this area is not located within a wetland (see Data Form T-4, P-2).

Sample Site T-4, P-3: Sample Site T-4, P-3 is located approximately 130 feet northeast of T-4, P-2 in a scrub shrub community. This area was inundated to approximately 18 inches at the time of the survey. Dominant vegetation included green ash, poison ivy, and red maple in the sapling shrub stratum. No tree stratum was present at this sample site and no herbaceous stratum was observed due to the degree of inundation. One hundred percent of the dominant vegetation has an indicator status of OBL, FACW, or FAC. The hydrophytic vegetation criterion was met at this sample site.

The soil series mapped at this sample site is the Nolin silty clay loam. The soil survey indicates that the area is within a cut and fill zone, i.e., that there has been some disturbance of the natural soils in the past. A soil sample was not obtainable at this sample site due to the degree of inundation; therefore, the series was not confirmed. Stream gauge data showed this area is inundated for at least seven consecutive days during the growing season; therefore, soils at this sample site were considered to be hydric. Primary wetland hydrology indicators present included inundation, saturation in the upper 12 inches, water marks, drift lines, and sediment deposits. Secondary wetland hydrology indicators recorded included a positive Fac-Neutral test. It is G.E.C.'s opinion that this area is located within a wetland (see Data Form T-4, P-3).

The community changed to a BLH community dominated by red maple approximately 100 feet northeast of T-4, P-3. This location was lower topographically than T-4, P-3 and was inundated to approximately 24 inches at the time of the survey. Depth of inundation increased along Transect 4 to greater than 24 inches northeast of the red maple stand. The transect was terminated at this point and resumed along the northern boundary.

Sample Site T-4, P-4: Sample Site T-4, P-4 is located in a fallow field approximately 218 feet south of the northern property boundary along transect 4, which is approximately 1,428 feet west of the northeastern corner of the site. Dominant vegetation includes *Solidago* sp., poison ivy, big bluestem, *Rubus* sp., and *Aster* sp. in the herbaceous stratum. No sapling shrub or tree strata were present during the survey. Fifty percent of the dominant vegetation has an indicator status of OBL, FACW, or FAC. The hydrophytic vegetation criterion was met not at this sample site.

The soil series mapped at this sample site is the Elkinsville silt loam. This series was confirmed and is not listed as a hydric soil of the United States. No primary or secondary wetland hydrology indicators were present at the time of the survey. It is G.E.C.'s opinion that this area is not located within a wetland (see Data Form T-4, P-3).

Sample Site T-5, P-1: Sample Site T-5, P-1 is located approximately 1,573 feet northeast of the Ohio River along Transect 5 in a BLH community. Dominant vegetation in the tree stratum included red maple and American elm (*Ulmus americana*). Green ash was the only dominant in the sapling shrub stratum. Dominants in the herbaceous and woody vine stratum included poison ivy and muscadine grape respectively. One hundred percent of the dominant vegetation has an indicator status of OBL, FACW, or FAC; therefore, the hydrophytic vegetation criterion was met at this sample site.

The soil series mapped at this sample site is the Newark silty clay loam. The soil survey indicates that the area is within a cut and fill zone, i.e., that there has been some disturbance of the natural soils in the past. This soil series was confirmed during the field investigations, and is listed as a Hydric Soil of the United States. Field indicators (soil colors) of hydric soils were not present during the field investigation, however, stream gauge data showed this area is inundated for at least seven consecutive days during the growing season. The soils at this sample site were considered to be hydric based on the period of inundation during the growing season. Primary wetland hydrology indicators observed at the sample site included saturation in the upper 12 inches, watermarks, drift lines, and sediment deposits. Secondary wetland hydrology indicators included oxidized root channels in the upper 12 inches, water stained leaves and a positive Fac-Neutral test. It is G.E.C.'s opinion that this area is located within a wetland (see Data Form T-5, P-1).

Sample Site T-5, P-2: Sample Site T-5, P-2 is located approximately 360 feet southwest of T-5, P-1 in a red maple stand (BLH). Dominant vegetation included red maple in the tree stratum and poison ivy in the herbaceous stratum. No dominant sapling shrub stratum was observed during the investigation. One hundred percent of the dominant vegetation has an indicator status of OBL, FACW, or FAC. The hydrophytic vegetation criterion was met at this sample site.

The soil series mapped at this sample site is the Newark silty clay loam. The soil survey also indicates that the area is within a cut and fill zone, i.e., that there has been some disturbance of the natural soils in the past. This soil series was confirmed during the field investigations, and is listed as a Hydric Soil of the United States. However, field indicators (soil colors) of hydric soils were not observed during the field investigation. Based on stream gauge data, this area is inundated for at least seven consecutive days during the growing season. Soils at this sample site were considered to be non-hydric as the area hydrology appears to have been altered such that the duration of inundation has been reduced. Primary wetland hydrology indicators were observed at the sample site and included watermarks, drift lines, and sediment deposits. Secondary wetland hydrology indicators included water stained leaves and a positive Fac-Neutral test. It is G.E.C.'s opinion that this area is not located within a wetland (see Data Form T-5, P-2).

Sample Site T-6, P-1: Sample Site T-6, P-1 is located approximately 400 feet northeast of the Ohio River along Transect 6 in a BLH community. Dominants in the tree stratum include cottonwood and

silver maple. Silver maple and box elder (*Acer negundo*) dominated the sapling shrub stratum. The only dominant in the herbaceous stratum was poison ivy. One hundred percent of the dominant vegetation has an indicator status of OBL, FACW, or FAC. The hydrophytic vegetation criterion was met at this sample site.

The soil series mapped at this sample site is the Newark silty clay loam. The soil survey indicates that the area is within a cut and fill zone, i.e., that there has been some disturbance of the natural soils in the past. This soil series was confirmed during the field investigations, and is listed as a Hydric Soil of the United States. Field indicators (soil colors) of hydric soils were not present during the field investigation. Based on stream gauge data, this area is not inundated for at least seven consecutive days during the growing season and the soils at this sample site were considered to be non-hydric. Primary wetland hydrology indicators were observed at the sample site and included watermarks, drift lines, and sediment deposits. Secondary wetland hydrology indicators included water stained leaves and a positive Fac-Neutral test. It is G.E.C.'s opinion that this area is not located within a wetland (see Data Form T-6, P-1).

Sample Site T-6, P-2: Sample Site T-6, P-2 is located approximately 418 feet northeast of T-6, P-1 in a drain approximately 100 feet wide. Species composition and density differed from T-6, P-1 with dominant vegetation in the tree stratum consisting of black willow, and silver maple. Dominants in the sapling shrub stratum included poison ivy and great ragweed (*Ambrosia trifida*). There was no dominant herbaceous species during the time of the survey. One hundred percent of the dominant vegetation has an indicator status of OBL, FACW, or FAC; therefore, the hydrophytic vegetation criterion was met at this sample site.

The soil series mapped at this sample site is the Newark silty clay loam. The soil survey indicates that the area is within a cut and fill zone, i.e., that there has been some disturbance of the natural soils in the past. This soil series was confirmed during the field investigations, and is listed as a Hydric Soil of the United States. However field indicators (soil colors) of hydric soils were not present during the field investigation. Based on the stream gauge data, this area is inundated for at least seven consecutive days during the growing season. Soils at this sample site were considered to be non-hydric as the area hydrology appears to have been altered such that the duration of inundation has been reduced. Primary wetland hydrology indicators were observed at the sample site and included watermarks, drift lines, and sediment deposits. Secondary wetland hydrology indicators included water stained leaves and a positive Fac-Neutral test. It is G.E.C.'s opinion that this area is not located within a wetland (see Data Form T-6, P-2).

Sample Site T-7, P-1: Sample Site T-7, P-1 is located approximately 45 feet northeast of the Pitcher Lake along Transect 7 in a BLH community along the northern portion of the property. No sample sites were established along Transect 7 south of Pitcher Lake because the community was homogenous with that sampled along Transect 6. Dominant vegetation in the tree stratum at T-7, P-1 included American elm and bur oak (*Quercus macrocarpa*). Poison ivy and muscadine grape dominated the woody vine stratum. The sapling shrub and herbaceous stratum was lacking at this sample site. Seventy-five percent of the dominant vegetation has an indicator status of OBL, FACW, or FAC. The hydrophytic vegetation criterion was met at this sample site.

The soil series mapped at this sample site is the Wheeling series. This soil series was not confirmed during the field investigations. Based on soil characteristics observed at the sample site, this soil appears to be an inclusion of the Evansville series, which is listed as a Hydric Soil of the United States. However, field indicators (soil colors) of hydric soils were not present during the field investigation. Based on stream gauge data, this area is not inundated for at least seven consecutive days during the growing season; therefore, soils at this sample site were considered to be non-hydric. No primary wetland hydrology indicators were observed at this sample site. The only secondary wetland hydrology indicator recorded was a positive FAC-Neutral test. It is G.E.C.'s opinion that this sample site is not located within a wetland (see Data Form T-7, P-1).

Sample Site T-8, P-1: Sample Site T-8, P-1 was located approximately 420 feet northeast of the Ohio River along Transect 8 in an open area along the western portion of the property. Great ragweed was the only dominant recorded at the sample site and comprised the majority or the sapling shrub stratum. One hundred percent of the dominant vegetation has an indicator status of OBL, FACW, or FAC. The hydrophytic vegetation criterion was met at this sample site.

The soil series mapped at this sample site is the Nolin silt loam. This soil series was confirmed during the field investigations, and is listed as a Hydric Soil of the United States. However, field indicators (soil colors) of hydric soils were not present during the field investigation. Based on stream gauge data, this area is not inundated for at least seven consecutive days during the growing season and the soils at this sample site were considered to be non-hydric. Primary wetland hydrology indicators at this sample site included watermarks and drift lines. The only secondary wetland hydrology indicator recorded was a positive FAC-Neutral test. It is G.E.C.'s opinion that this sample site is not located within a wetland (see Data Form T-7, P-1).

CONCLUSIONS

Based on the findings of G.E.C.'s wetland delineation, approximately 120 acres of the property are considered wetlands, and approximately 13 acres contain open water (Figure 3). The 13 acres of open water include Pitcher Lake and a small man-made pond located in the southwestern portion of the site. The wetlands were generally confined to the north central portion of the site. The wetland boundary is located in a broad transition zone. The current boundary generally follows the 347 foot contour with some variation towards the center of the property. It is G.E.C.'s opinion that in this area, the hydrology has been altered by fill placed during the construction of the J.T. Myers Locks and Dams, and old road beds functioning as levees. Water is impounded to the north, thereby increasing the duration of inundation to the north and east of the existing road beds. Wetland classifications present include Palustrian Forested, Scrub-Shrub, and Emergent Herbaceous; with water regimes ranging from permanently flooded to seasonally flooded.

QUALIFICATIONS

Although G.E.C. uses the same criteria and methodology as that of the USACE, due to the degree of subjectivity associated with studies of this type, there may be some variance in the demarcation of the wetland boundary. Consequently, G.E.C.'s opinion may not necessarily reflect that of the USACE, nor does it obviate the need to verify the wetland findings, consult with the USACE, and possibly obtain a Department of the Army permit prior to performing any dredging, filling and/or

construction operations in Waters of the United States, including wetlands. Therefore, until a formal verification of the enclosed results has been conducted, all wetland location maps included in this report should be used for planning purposes only and not for regulatory or legal use.

Appendix A

ROUTINE WETLAND DETERMINATION DATA FORMS

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: J.T. Myers Lock & Dam	Date: 3-24-99
Applicant/Owner: USACE	County: Posey
Investigator: B. McCoy, S. Knaus	State: IN
Do Normal Circumstances exist on the site? (Yes) No	Community ID: Open / SS
Is the site significantly disturbed (Atypical Situation)? Yes (No)	Transect ID: 1
Is the area a potential Problem Area? Yes (No)	Plot ID: 1
(If needed, explain on reverse.)	

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Xanthium strumarium	H	FAC	9.		
2. Desmodium sp.	H		10.		
3.			11.		
4.			12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 100 %

Remarks:

HYDROLOGY

✓ Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water:	N/A (in.)
Depth to Free Water in Pit:	6 (in.)
Depth to Saturated Soil:	2-3 * (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- N Inundated
- Y Saturated in Upper 12 Inches
- Y Water Marks
- Y Drift Lines
- Y Sediment Deposits
- N Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- N Oxidized Root Channels in Upper 12 Inches
- N Water-Stained Leaves
- Y Local Soil Survey Data
- N FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks: * Saturated at surface, water seeping into pit at ≈ 10 in.

SOILS

Map Unit Name (Series and Phase): Nolin silt loam, ... Drainage Class: WD

Field Observations

Taxonomy (Subgroup): mesic Dystric Fluventic Eutrochrepts Confirm Mapped Type? (Yes) No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance, Contrast	Texture, Concretions, Structure, etc.
0-6		2.5Y 4/3			silty clay
6-18+		10YR 4/3			clay loam

Hydric Soil Indicators:

- ___ Histosol
- N Histic Epipedon
- N Sulfidic Odor
- Y Aquic Moisture Regime
- ___ Reducing Conditions
- N Gleyed or Low-Chroma Colors
- N Concretions
- N High Organic Content in Surface Layer in Sandy Soils
- N Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- Y Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)

Wetland Hydrology Present? (Yes) No

Hydric Soils Present? Yes (No)

(Circle)

Is this Sampling Point Within a Wetland? Yes (No)

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: J. T. Myers Lock & Dam Applicant/Owner: USACE Investigator: B. McCoy, S. Knaus	Date: 3-24-99 County: Posey State: IN
Do Normal Circumstances exist on the site? (Yes) No Is the site significantly disturbed (Atypical Situation)? Yes (No) Is the area a potential Problem Area? Yes (No) (If needed, explain on reverse.)	Community ID: Open / SS Transect ID: T1 Plot ID: P2

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1.			9.		
2.			10.		
3.			11.		
4.			12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).

Remarks: * This sample site was located in an area frequently mowed. The dominant grass was not identified.

HYDROLOGY

- ✓ Recorded Data (Describe in Remarks):
  - K Stream, Lake, or Tide Gauge
  - ___ Aerial Photographs
  - ___ Other
- ___ No Recorded Data Available

Field Observations:

Depth of Surface Water:	N/A	(in.)
Depth to Free Water in Pit:	N/A	(in.)
Depth to Saturated Soil:	N/A	(in.)

Wetland Hydrology Indicators:

Primary Indicators:
- N Inundated
- N Saturated in Upper 12 Inches
- N Water Marks
- Y Drift Lines
- N Sediment Deposits
- N Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- N Oxidized Root Channels in Upper 12 Inches
- N Water-Stained Leaves
- N Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name (Series and Phase): Newark silty clay loam Drainage Class: PD

Taxonomy (Subgroup): mesic Aeric Fluvaquents Field Observations Confirm Mapped Type? (Yes) No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance, Contrast	Texture, Concretions, Structure, etc.
0-6		2.5Y 4/3			silty clay
6-18		10YR 4/4			clay loam

Hydric Soil Indicators:

- ___ Histosol
- N Histic Epipedon
- N Sulfidic Odor
- Y Aquic Moisture Regime
- ___ Reducing Conditions
- N Gleyed or Low-Chroma Colors
- N Concretions
- N High Organic Content in Surface Layer in Sandy Soils
- N Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- Y Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes No (Circle)
Wetland Hydrology Present? (Yes) No
Hydric Soils Present? Yes (No)

Is this Sampling Point Within a Wetland? (Circle) Yes (No)

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: J.T. Myers Lock & Dam
Applicant/Owner: USACE
Investigator: B. McCoy, S. Knaus

Date: 3-24-99
County: Posey
State: IN

Do Normal Circumstances exist on the site? (Yes) No
Is the site significantly disturbed (Atypical Situation)? Yes (No)
Is the area a potential Problem Area? Yes (No)
(If needed, explain on reverse.)

Community ID: Fallow field
Transect ID: 1
Plot ID: 3

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Panicum sp.	H	
2. Erigeron sp.	H	
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).

Remarks: Plot taken near canal on NE boundary.

HYDROLOGY

✓ Recorded Data (Describe in Remarks):
- ✓ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water: N/A (in.)

Depth to Free Water in Pit: 13 (in.)

Depth to Saturated Soil: 9 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- N Inundated
- Y Saturated in Upper 12 Inches
- N Water Marks
- N Drift Lines
- Y Sediment Deposits
- N Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- N Oxidized Root Channels in Upper 12 Inches
- Y Water-Stained Leaves
- Y Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name (Series and Phase): NEWARK silty Clay loam Drainage Class: PD

Taxonomy (Subgroup): mesic, Aeric Fluvaquents Field Observations Confirm Mapped Type? (Yes) No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance, Contrast	Texture, Concretions, Structure, etc.
0-4		10YR 4/2			clay loam
4-18+		10YR 4/3			clay loam

Hydric Soil Indicators:

- ___ Histosol
- 2 Histic Epipedon
- 2 Sulfidic Odor
- 2 Aquic Moisture Regime
- ___ Reducing Conditions
- 2 Gleyed or (Low-Chroma Colors)
- 2 Concretions
- 2 High Organic Content in Surface Layer in Sandy Soils
- 2 Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- Y Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? (Yes) No
Hydric Soils Present? (Yes) No

Is this Sampling Point Within a Wetland? (Circle) (Yes) No

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: J. T. Myers Lock & Dam
Applicant/Owner: USACE
Investigator: S. Knaus, B. McCoy, T. Wharton, T. Lacoste

Date: 3-22-99
County: Posey
State: IN

Do Normal Circumstances exist on the site? (Yes) No
Is the site significantly disturbed (Atypical Situation)? Yes (No)
Is the area a potential Problem Area? Yes (No)
(If needed, explain on reverse.)

Community ID: Prairie
Transect ID: 3
Plot ID: 1

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Andropogon gerardii	H	FAC-
2. Setaria italica	H	FACU
3. Panicum sp.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 0%

Remarks:

HYDROLOGY

✓ Recorded Data (Describe in Remarks):
- ✓ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water: N/A (in.)
Depth to Free Water in Pit: N/A (in.)
Depth to Saturated Soil: N/A (in.)

Wetland Hydrology Indicators:
Primary Indicators:
- N Inundated
- N Saturated in Upper 12 Inches
- N Water Marks
- N Drift Lines
- N Sediment Deposits
- N Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- N Oxidized Root Channels in Upper 12 Inches
- N Water-Stained Leaves
- N Local Soil Survey Data
- — FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks: Plot taken at elevation 353'.

SOILS

Map Unit Name (Series and Phase): NEWARK Silty clay loam Drainage Class: PD

Taxonomy (Subgroup): mesic Aeric Fluvaquents Field Observations Confirm Mapped Type? (Yes) No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance, Contrast	Texture, Concretions, Structure, etc.
0-8		10YR 3/2			clay loam
8-12		10YR 3/3	10YR 3/4	C, 3, F	clay loam
12-18		2.5Y 4/3	10YR 4/6	C, 3, D	clay loam

Hydric Soil Indicators:

- ___ Histosol
- N Histic Epipedon
- N Sulfidic Odor
- Y Aquic Moisture Regime
- ___ Reducing Conditions
- N Gleyed or Low-Chroma Colors
- N Concretions
- N High Organic Content in Surface Layer in Sandy Soils
- N Organic Streaking in Sandy Soils
- Y Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes (No) (Circle)
Wetland Hydrology Present? Yes (No)
Hydric Soils Present? Yes (No)

Is this Sampling Point Within a Wetland? (Circle) Yes (No)

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: J. T. Myers Lock & Dam
Applicant/Owner: USACE
Investigator: T. Wharton, S. Knaus, B. McCoy, T. Lacoste

Date: 3-22-99
County: Posey
State: IN

Do Normal Circumstances exist on the site? (Yes) No
Is the site significantly disturbed (Atypical Situation)? Yes (No)
Is the area a potential Problem Area? Yes (No)
(If needed, explain on reverse.)

Community ID: BLH
Transect ID: 3
Plot ID: 2

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Populus deltoides	T	FAC+
2. Celtis occidentalis	T	FAC-
3. Acer saccharinum	T	FACW
4. Vitis rotundifolia	W/V	FACW
5. Cornus amomum	S/S	FACW+
6. Toxicodendron radicans	W/V	FAC+
7. Carya sp.	S/S	
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 83%

Remarks:

HYDROLOGY

✓ Recorded Data (Describe in Remarks):
- ✓ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water: N/A (in.)
Depth to Free Water in Pit: N/A (in.)
Depth to Saturated Soil: N/A (in.)

Wetland Hydrology Indicators:
Primary Indicators:
- N Inundated
- N Saturated in Upper 12 Inches
- Y Water Marks
- Y Drift Lines
- Y Sediment Deposits
- N Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- N Oxidized Root Channels in Upper 12 Inches
- Y Water-Stained Leaves
- ___ Local Soil Survey Data
- + FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks: Elevation 354'

SOILS

Map Unit Name (Series and Phase): Nolin silt loam Drainage Class: WD

Field Observations

Taxonomy (Subgroup): mesic Dystric Fluventic Eutrochrepts Confirm Mapped Type? (Yes) No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance, Contrast	Texture, Concretions, Structure, etc.
0-3		10YR 3/2			silt clay loam
3-6		10YR 3/2			sandy loam
		10YR 4/4			
6-18+		10YR 5/4			sandy loam

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- Y Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)

Wetland Hydrology Present? (Yes) No

Hydric Soils Present? Yes (No)

(Circle)

Is this Sampling Point Within a Wetland? Yes (No)

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: J.T. Myers Lock & Dam
Applicant/Owner: USACE
Investigator: T. Wharton, S. Knaus

Date: 3-22-99
County: Posey
State: IN

Do Normal Circumstances exist on the site? (Yes) No
Is the site significantly disturbed (Atypical Situation)? Yes (No)
Is the area a potential Problem Area? Yes (No)
(If needed, explain on reverse.)

Community ID: BLH
Transect ID: 3
Plot ID: 3

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Populus deltoides	T	FAC+
2. Acer rubrum	T	FAC
3. Fraxinus pennsylvanica	S/S	FACW
4. Acer rubrum	S/S	FAC
5. Toxicodendron radicans	S/S	FAC+
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 100%

Remarks:

HYDROLOGY

✓ Recorded Data (Describe in Remarks):
___ Stream, Lake, or Tide Gauge
___ Aerial Photographs
___ Other
___ No Recorded Data Available

Field Observations:

Depth of Surface Water: 2.0 (in.)
Depth to Free Water in Pit: * (in.)
Depth to Saturated Soil: * (in.)

Wetland Hydrology Indicators:
Primary Indicators:
Y Inundated
Y Saturated in Upper 12 Inches
Y Water Marks
Y Drift Lines
Y Sediment Deposits
Y Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
* Oxidized Root Channels in Upper 12 Inches
Y Water-Stained Leaves
✓ Local Soil Survey Data
A FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks: * Soil profile is unattainable due to degree of inundation. Water is ≈ 24 inches.

SOILS

Map Unit Name (Series and Phase): NEWARK Silt loam

Drainage Class: PD

Taxonomy (Subgroup): MESIC Aeric Fluvaquent

Field Observations * Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance, Contrast	Texture, Concretions, Structure, etc.

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: * Soil profile unobtainable due to degree of inundation (greater than 2.0 ft.)

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? (Yes) No
Hydric Soils Present? (Yes) No

Is this Sampling Point Within a Wetland? (Circle) (Yes) No

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: J. T. Myers Lock & Dam
Applicant/Owner: USACE
Investigator: T. Wharton, S. Knaus
Date: 3-22-99
County: Posey
State: IN

Do Normal Circumstances exist on the site? (Yes) No
Is the site significantly disturbed (Atypical Situation)? Yes (No)
Is the area a potential Problem Area? Yes (No)
(If needed, explain on reverse.)

Community ID: Scrub Shrub
Transect ID: 3
Plot ID: 4

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Gleditsia triacanthos	T	FAC
2. Diospyros virginiana	S/S	FAC
3. Toxicodendron radicans	H	FAC+
4. Celtis occidentalis	S/S	FAC-
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 75%

Remarks:

HYDROLOGY

✓ Recorded Data (Describe in Remarks):
- ✓ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water: N/A (in.)
Depth to Free Water in Pit: N/A (in.)
Depth to Saturated Soil: N/A (in.)

Wetland Hydrology Indicators:
Primary Indicators:
- N Inundated
- N Saturated in Upper 12 Inches
- N Water Marks
- N Drift Lines
- N Sediment Deposits
- N Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- N Oxidized Root Channels in Upper 12 Inches
- N Water-Stained Leaves
- ___ Local Soil Survey Data
- N FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name (Series and Phase): Nolin silt loam — Drainage Class: WD

Taxonomy (Subgroup): mesic Dystric Fluventic Eutrochrepts — Field Observations Confirm Mapped Type? (Yes) No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance, Contrast	Texture, Concretions, Structure, etc.
0-3		10YR 4/2			clay loam
3-9		10YR 5/6			clay loam
9-12		10YR 4/2			clay loam
12-18+		10YR 5/4			clay

Hydric Soil Indicators:

- ___ Histosol
- N Histic Epipedon
- N Sulfidic Odor
- N Aquic Moisture Regime
- ___ Reducing Conditions
- N Gleyed or Low-Chroma Colors
- N Concretions
- N High Organic Content in Surface Layer in Sandy Soils
- N Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- Y Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? Yes (No)
Hydric Soils Present? Yes (No)

Is this Sampling Point Within a Wetland? (Circle) Yes (No)

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: J.T. Myers Lock & Dam
Applicant/Owner: USACE
Investigator: T. Wharton, S. Knaus, B. McCoy, T. Lacoste

Date: 3-22-99
County: Posey
State: IN

Do Normal Circumstances exist on the site? (Yes) No
Is the site significantly disturbed (Atypical Situation)? Yes (No)
Is the area a potential Problem Area? Yes (No)
(If needed, explain on reverse.)

Community ID: Fallow field
Transect ID: 3
Plot ID: 5

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Setaria italica	H	FACU
2. Andropogon virginicus	H	FAC-
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 0%

Remarks:

HYDROLOGY

✓ Recorded Data (Describe in Remarks):
- ✓ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water: N/A (in.)
Depth to Free Water in Pit: N/A (in.)
Depth to Saturated Soil: N/A (in.)

Wetland Hydrology Indicators:
Primary Indicators:
- N Inundated
- N Saturated in Upper 12 Inches
- N Water Marks
- N Drift Lines
- N Sediment Deposits
- N Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- N Oxidized Root Channels in Upper 12 Inches
- N Water-Stained Leaves
- ___ Local Soil Survey Data
- — FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks: Elevation 354'

SOILS

Map Unit Name (Series and Phase): Nolin silt loam

Drainage Class: WD

Taxonomy (Subgroup): mesic Dystric Fluvaquentic Eutrochrepts

Field Observations Confirm Mapped Type? (Yes) No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance, Contrast	Texture, Concretions, Structure, etc.
0-3		10YR 4/2			silt clay loam
3-12		10YR 5/3			silt clay loam
12-18+		10YR 5/3	10YR 5/8	M, 1, D	clay loam

Hydric Soil Indicators:

- ___ Histosol
- N Histic Epipedon
- N Sulfidic Odor
- Y Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- N Concretions
- N High Organic Content in Surface Layer in Sandy Soils
- N Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- Y Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes (No) (Circle)

Wetland Hydrology Present? Yes (No)

Hydric Soils Present? Yes (No)

Is this Sampling Point Within a Wetland? (Circle) Yes (No)

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: J. T. Myers Lock & Dam
Applicant/Owner: USACE
Investigator: T. Lacoste, B. McCoy, S. Knaus, T. Wharton

Date: 3-22-99
County: Posey
State: IN

Do Normal Circumstances exist on the site? (Yes) No
Is the site significantly disturbed (Atypical Situation)? Yes (No)
Is the area a potential Problem Area? Yes (No)
(If needed, explain on reverse.)

Community ID: Sweetgum thicket
Transect ID: 3
Plot ID: 6

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Liquidambar styraciflua	T	FACW
2. Liquidambar styraciflua	S/S	FACW
3. Maclura pomifera	S/S	FACU
4. Toxicodendron radicans	W/V	FAC+
5. Rubus sp.	S/S	
6. Craetagus sp.	S/S	
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 75%

Remarks:

HYDROLOGY

✓ Recorded Data (Describe in Remarks):
- ✓ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water: N/A (in.)
Depth to Free Water in Pit: 11 (in.)
Depth to Saturated Soil: 9 (in.)

Wetland Hydrology Indicators:
Primary Indicators:
- N Inundated
- Y Saturated in Upper 12 Inches
- N Water Marks
- N Drift Lines
- N Sediment Deposits
- N Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- N Oxidized Root Channels in Upper 12 Inches
- N Water-Stained Leaves
- ___ Local Soil Survey Data
- + FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name (Series and Phase): Nolin silt loam Drainage Class: WD

Taxonomy (Subgroup): mesic Dystric Fluventic Eutrochrepts Field Observations Confirm Mapped Type? (Yes) No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance.Contrast	Texture, Concretions, Structure, etc.
0-2		10YR 4/3			clay loam
2-12		10YR 4/2			silt loam
12-18+		10YR 4/4			silt clay loam

Hydric Soil Indicators:

- ___ Histosol
- 2 Histic Epipedon
- 2 Sulfidic Odor
- 2 Aquic Moisture Regime
- ___ Reducing Conditions
- 2 Gleyed or Low-Chroma Colors
- 2 Concretions
- 2 High Organic Content in Surface Layer in Sandy Soils
- 2 Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- Y Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? (Yes) No
Hydric Soils Present? Yes (No)

Is this Sampling Point Within a Wetland? (Circle) Yes (No)

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: J. T. Myers Lock & Dam
Applicant/Owner: USACE
Investigator: T. Wharton, S. Knaus

Date: 3-23-99
County: Posey
State: IN

Do Normal Circumstances exist on the site? (Yes) No
Is the site significantly disturbed (Atypical Situation)? Yes (No)
Is the area a potential Problem Area? Yes (No)
(If needed, explain on reverse.)

Community ID: Scrub
Transect ID: 4
Plot ID: 1

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Celtis occidentalis	S/S	FAC-
2. Populus deltoides	S/S	FAC+
3. Fraxinus pennsyvanica	S/S	FACW
4. Toxicodendron radicans	H	FAC+
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 75%

Remarks:

HYDROLOGY

✓ Recorded Data (Describe in Remarks):
- ✓ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water: N/A (in.)
Depth to Free Water in Pit: N/A (in.)
Depth to Saturated Soil: N/A (in.)

Wetland Hydrology Indicators:
Primary Indicators:
- N Inundated
- N Saturated in Upper 12 Inches
- N Water Marks
- N Drift Lines
- N Sediment Deposits
- N Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- N Oxidized Root Channels in Upper 12 Inches
- N Water-Stained Leaves
- ___ Local Soil Survey Data
- + FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name (Series and Phase): Newark silty clay loam Drainage Class: PD

Taxonomy (Subgroup): mesic Aeric Fluvaquent Field Observations Confirm Mapped Type? (Yes) No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance, Contrast	Texture, Concretions, Structure, etc.
0-4		10YR 4/2			clay loam
4-7		10YR 4/1			clay loam
7-18		10YR 4/2			clay loam

Hydric Soil Indicators:

- ___ Histosol
- N Histic Epipedon
- N Sulfidic Odor
- Y Aquic Moisture Regime
- Y Reducing Conditions
- N Gleyed or Low-Chroma Colors
- N Concretions
- N High Organic Content in Surface Layer in Sandy Soils
- N Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- Y Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? Yes (No)
Hydric Soils Present? Yes (No)

Is this Sampling Point Within a Wetland? Yes (No) (Circle)

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: J. T. Myers Lock & Dam
Applicant/Owner: USACE
Investigator: T. Wharton, S. Kraus

Date: 3-23-99
County: Posey
State: IN

Do Normal Circumstances exist on the site? (Yes) No
Is the site significantly disturbed (Atypical Situation)? Yes (No)
Is the area a potential Problem Area? Yes (No)
(If needed, explain on reverse.)

Community ID: Red Maple Stand
Transect ID: 4
Plot ID: 2

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Acer rubrum	T	FAC
2. Toxicodendron radicans	S/S	FAC+
3. Vitis rotundifolia	W/V	FACW
4. Berchemia scandens	W/V	FAC+
5.		
6.		
7.		
8.		

Dominant Plant Species	Stratum	Indicator
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 100%

Remarks:

HYDROLOGY

✓ Recorded Data (Describe in Remarks):
- ✓ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water: N/A (in.)
Depth to Free Water in Pit: N/A (in.)
Depth to Saturated Soil: N/A (in.)

Wetland Hydrology Indicators:
Primary Indicators:
- N Inundated
- N Saturated in Upper 12 Inches
- Y Water Marks
- Y Drift Lines
- Y Sediment Deposits
- N Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- N Oxidized Root Channels in Upper 12 Inches
- Y Water-Stained Leaves
- ___ Local Soil Survey Data
- + FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name (Series and Phase): Newark silty clay loam Drainage Class: PD

Taxonomy (Subgroup): mesic Aeric Fluvaquents Field Observations Confirm Mapped Type? (Yes) No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance, Contrast	Texture, Concretions, Structure, etc.
X 0-18"±		10YR 4/2			clay loam

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- Y Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: X Area appears to receive sediment run off from adjacent community to south.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? (Yes) No
Hydric Soils Present? Yes (No)

Is this Sampling Point Within a Wetland? (Circle) Yes (No)

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: J. T. Myers Lock & Dam
Applicant/Owner: USACE
Investigator: T. Wharton, S. Knaus

Date: 3-23-99
County: Posey
State: IN

Do Normal Circumstances exist on the site? (Yes) No
Is the site significantly disturbed (Atypical Situation)? Yes (No)
Is the area a potential Problem Area? Yes (No)
(If needed, explain on reverse.)

Community ID: Scrub Shrub
Transect ID: 4
Plot ID: 3

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Fraxinus pennsylvanica	S/S	FACW
2. Toxicodendron radicans	S/S	FAC+
3. Acer rubrum	S/S	FAC
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 100%

Remarks:

HYDROLOGY

✓ Recorded Data (Describe in Remarks):
___ Stream, Lake, or Tide Gauge
___ Aerial Photographs
___ Other
___ No Recorded Data Available

Field Observations:

Depth of Surface Water: 18 (in.)
Depth to Free Water in Pit: Ø (in.)
Depth to Saturated Soil: Ø (in.)

Wetland Hydrology Indicators:
Primary Indicators:
Y Inundated
Y Saturated in Upper 12 Inches
Y Water Marks
Y Drift Lines
Y Sediment Deposits
___ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
___ Local Soil Survey Data
+ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name (Series and Phase): * _____ Drainage Class: _____

Taxonomy (Subgroup): _____ Field Observations Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance, Contrast	Texture, Concretions, Structure, etc.

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
___ Gleyed or Low-Chroma Colors
___ Concretions
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? (Yes) No
Hydric Soils Present? (Yes) No

Is this Sampling Point Within a Wetland? (Circle) (Yes) No

Remarks: * No soil recorded due to degree of inundation.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: J. T. Myers Lock & Dam
Applicant/Owner: USACE
Investigator: T. Wharton, S. Krause

Date: 3-23-99
County: Posey
State: IN

Do Normal Circumstances exist on the site? (Yes) No
Is the site significantly disturbed (Atypical Situation)? Yes (No)
Is the area a potential Problem Area? Yes (No)
(If needed, explain on reverse.)

Community ID: fallow field
Transect ID: 4
Plot ID: 4

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Solidago sp.	H	
2. Toxicodendron radicans	H	FAC+
3. Andropogon gerardii	H	FAC-
4. Rubus sp.	H	
5. Aster sp.	H	
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 50%

Remarks:

HYDROLOGY

✓ Recorded Data (Describe in Remarks):
___ Stream, Lake, or Tide Gauge
___ Aerial Photographs
___ Other
___ No Recorded Data Available

Field Observations:

Depth of Surface Water: N/A (in.)
Depth to Free Water in Pit: N/A (in.)
Depth to Saturated Soil: N/A (in.)

Wetland Hydrology Indicators:
Primary Indicators:
N Inundated
N Saturated in Upper 12 Inches
N Water Marks
N Drift Lines
N Sediment Deposits
N Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
N Oxidized Root Channels in Upper 12 Inches
N Water-Stained Leaves
N Local Soil Survey Data
N FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name (Series and Phase): Elkinsville silt loam Drainage Class: WD

Taxonomy (Subgroup): mesic Ultic Hapludalfs Field Observations Confirm Mapped Type? (Yes) No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance, Contrast	Texture, Concretions, Structure, etc.
0-4		10YR 4/3			clay loam
4-7		10YR 5/3			clay loam
7-18		10YR 5/4	10YR 4/2	F, 2, D	clay

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- N Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: Hard pan

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes (No) (Circle)
Wetland Hydrology Present? Yes (No)
Hydric Soils Present? Yes (No)

Is this Sampling Point Within a Wetland? (Circle) Yes (No)

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: J.T. Myers Lock & Dam
Applicant/Owner: USACE
Investigator: T. Wharton, S. Knaus

Date: 3-23-99
County: Posey
State: IN

Do Normal Circumstances exist on the site? (Yes) No
Is the site significantly disturbed (Atypical Situation)? Yes (No)
Is the area a potential Problem Area? Yes (No)
(If needed, explain on reverse.)

Community ID: BLH
Transect ID: S
Plot ID: 1

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Acer rubrum	T	FAC
2. Ulmus americana	T	FACW
3. Fraxinus pennsylvanica	S/S	FACW
4. Toxicodendron radicans	H	FAC
5. Vitis rotundifolia	W/V	FACW
6.		
7.		
8.		

Dominant Plant Species	Stratum	Indicator
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 100%

Remarks:

HYDROLOGY

✓ Recorded Data (Describe in Remarks):
___ Stream, Lake, or Tide Gauge
___ Aerial Photographs
___ Other
___ No Recorded Data Available

Field Observations:

Depth of Surface Water: N/A (in.)
Depth to Free Water in Pit: N/A (in.)
Depth to Saturated Soil: 4 (in.)

Wetland Hydrology Indicators:
Primary Indicators:
N Inundated
Y Saturated in Upper 12 Inches
Y Water Marks
Y Drift Lines
Y Sediment Deposits
___ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
Y Oxidized Root Channels in Upper 12 Inches
Y Water-Stained Leaves
___ Local Soil Survey Data
+ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name (Series and Phase): Newark silty clay loam

Drainage Class: PD

Taxonomy (Subgroup): mesic Aeric Fluvaquents

Field Observations
Confirm Mapped Type? (Yes) No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance, Contrast	Texture, Concretions, Structure, etc.
0-7		10YR 3/2			clay loam
7-18		10YR 4/3	10YR 4/1	F, 1, F	clay loam

Hydric Soil Indicators:

- ___ Histosol
- N Histic Epipedon
- N Sulfidic Odor
- N Aquic Moisture Regime
- ___ Reducing Conditions
- N Gleyed or Low-Chroma Colors
- N Concretions
- N High Organic Content in Surface Layer in Sandy Soils
- N Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- Y Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? (Yes) No
Hydric Soils Present? (Yes) No

Is this Sampling Point Within a Wetland? (Yes) No (Circle)

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: J. T. Myers Lock & Dam
Applicant/Owner: USACE
Investigator: T. Wharton, S. Knaus

Date: 3-23-99
County: Posey
State: IN

Do Normal Circumstances exist on the site? (Yes) No
Is the site significantly disturbed (Atypical Situation)? Yes (No)
Is the area a potential Problem Area? Yes (No)
(If needed, explain on reverse.)

Community ID: BLH
Transect ID: 5
Plot ID: 2

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Acer rubrum	T	FAC
2. Toxicodendron radicans	H	FAC+
3.		
4.		
5.		
6.		
7.		
8.		

Dominant Plant Species	Stratum	Indicator
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 100%

Remarks:

HYDROLOGY

✓ Recorded Data (Describe in Remarks):
___ Stream, Lake, or Tide Gauge
___ Aerial Photographs
___ Other
___ No Recorded Data Available

Field Observations:

Depth of Surface Water: N/A (in.)
Depth to Free Water in Pit: N/A (in.)
Depth to Saturated Soil: _____ (in.)

Wetland Hydrology Indicators:
Primary Indicators:
N Inundated
N Saturated in Upper 12 Inches
Y Water Marks
Y Drift Lines
Y Sediment Deposits
N Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
N Oxidized Root Channels in Upper 12 Inches
Y Water-Stained Leaves
___ Local Soil Survey Data
+ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name (Series and Phase): Nolin silt loam — Drainage Class: WD

Taxonomy (Subgroup): mesic Dystric Fluventic Eutrochrepts — Field Observations Confirm Mapped Type? (Yes) No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance, Contrast	Texture, Concretions, Structure, etc.
0-4		10YR 4/2			clay loam
4-18		10YR 4/3			clay loam

Hydric Soil Indicators:

- ___ Histosol
- N Histic Epipedon
- N Sulfidic Odor
- N Aquic Moisture Regime
- ___ Reducing Conditions
- N Gleyed or Low-Chroma Colors
- N Concretions
- N High Organic Content in Surface Layer in Sandy Soils
- N Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- Y Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? (Yes) No
Hydric Soils Present? Yes (No)

Is this Sampling Point Within a Wetland? (Circle) Yes (No)

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: J. T. Myers Lock & Dam
Applicant/Owner: USACE
Investigator: B. McCoy, T. Lacoste

Date: 3-23-99
County: Posey
State: IN

Do Normal Circumstances exist on the site? (Yes) No
Is the site significantly disturbed (Atypical Situation)? Yes (No)
Is the area a potential Problem Area? Yes (No)
(If needed, explain on reverse.)

Community ID: BLH
Transect ID: 6
Plot ID: 1

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Populus deltoides	T	FAC+
2. Acer saccharinum	T	FACW
3. Acer saccharinum	S/S	FACW
4. Acer negundo	S/S	FACW-
5. Toxicodendron radicans	H	FAC+
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 100 %

Remarks:

HYDROLOGY

✓ Recorded Data (Describe in Remarks):
- ✓ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water: N/A (in.)
Depth to Free Water in Pit: N/A (in.)
Depth to Saturated Soil: N/A (in.)

Wetland Hydrology Indicators:
Primary Indicators:
- N Inundated
- N Saturated in Upper 12 Inches
- Y Water Marks
- Y Drift Lines
- Y Sediment Deposits
- N Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- N Oxidized Root Channels in Upper 12 Inches
- Y Water-Stained Leaves
- ___ Local Soil Survey Data
- + FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name (Series and Phase): Newark silty clay loam Drainage Class: PD

Taxonomy (Subgroup): mesic Aeric Fluvaquents Field Observations Confirm Mapped Type? (Yes) No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance, Contrast	Texture, Concretions, Structure, etc.
0-5		2.5Y 4/2			clay loam
5-18		2.5Y 4/3			clay

Hydric Soil Indicators:

- ___ Histosol
- 2 Histic Epipedon
- 2 Sulfidic Odor
- 4 Aquic Moisture Regime
- ___ Reducing Conditions
- N Gleyed or Low-Chroma Colors
- 2 Concretions
- 2 High Organic Content in Surface Layer in Sandy Soils
- 2 Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- Y Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? (Yes) No
Hydric Soils Present? Yes No

Is this Sampling Point Within a Wetland? Yes (No) (Circle)

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: J. T. Myers Lock & Dam
Applicant/Owner: USACE
Investigator: B. McCoy, T. Lacoste

Date: 3-23-99
County: Posey
State: IN

Do Normal Circumstances exist on the site? Yes No
Is the site significantly disturbed (Atypical Situation)? Yes No
Is the area a potential Problem Area? Yes No
(If needed, explain on reverse.)

Community ID: BLH
Transect ID: 6
Plot ID: 2

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Salix nigra	T	OBL
2. Acer saccharinum	T	FACW
3. Toxicodendron radicans	S/S	FAC+
4. Ambrosia trifida	S/S	FAC+
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 100%

Remarks:

HYDROLOGY

✓ Recorded Data (Describe in Remarks):
- ✓ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water: N/A (in.)
Depth to Free Water in Pit: N/A (in.)
Depth to Saturated Soil: N/A (in.)

Wetland Hydrology Indicators:
Primary Indicators:
- N Inundated
- N Saturated in Upper 12 Inches
- Y Water Marks
- Y Drift Lines
- Y Sediment Deposits
- N Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- N Oxidized Root Channels in Upper 12 Inches
- Y Water-Stained Leaves
- ___ Local Soil Survey Data
- + FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name (Series and Phase): Newark silty clay loam — Drainage Class: PD

Taxonomy (Subgroup): mesic Aeric Fluvaquents — Field Observations: Confirm Mapped Type? (Yes) No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance, Contrast	Texture, Concretions, Structure, etc.
0-6		2.5Y 4/2			clay loam
6-18		2.5Y 4/3	2.5Y 5/2	F, 1, F	silt clay loam

Hydric Soil Indicators:

- ___ Histosol
- N Histic Epipedon
- N Sulfidic Odor
- Y Aquic Moisture Regime
- ___ Reducing Conditions
- N Gleyed or Low-Chroma Colors
- N Concretions
- N High Organic Content in Surface Layer in Sandy Soils
- N Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- Y Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)

Wetland Hydrology Present? (Yes) No

Hydric Soils Present? Yes (No)

Is this Sampling Point Within a Wetland? (Circle) Yes (No)

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: J. T. Myers Lock & Dam
Applicant/Owner: USACE
Investigator: B. McCoy, T. Lacoste

Date: 3-23-99
County: Posey
State: IN

Do Normal Circumstances exist on the site? (Yes) No
Is the site significantly disturbed (Atypical Situation)? Yes (No)
Is the area a potential Problem Area? Yes (No)
(If needed, explain on reverse.)

Community ID: BLH
Transect ID: T
Plot ID: 1

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Ulmus americana	T	FACW-
2. Quercus macrocarpa	T	FAC-
3. Toxicodendron radicans	W/V	FAC+
4. Vitis rotundifolia	W/V	FACW
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 75%

Remarks:

HYDROLOGY

✓ Recorded Data (Describe in Remarks):
- ✓ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water: N/A (in.)
Depth to Free Water in Pit: N/A (in.)
Depth to Saturated Soil: N/A (in.)

Wetland Hydrology Indicators:
Primary Indicators:
- N Inundated
- N Saturated in Upper 12 Inches
- N Water Marks
- N Drift Lines
- N Sediment Deposits
- N Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- N Oxidized Root Channels in Upper 12 Inches
- N Water-Stained Leaves
- ___ Local Soil Survey Data
- + FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name (Series and Phase): Wheeling loam Drainage Class: WD

Taxonomy (Subgroup): Mesic Ultic Hapludalfs Field Observations Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance, Contrast	Texture, Concretions, Structure, etc.
0-1		2.5Y 4/2			
1-6		2.5Y 6/3	10YR 6/1	C, 3, D	silt clay
			10YR 6/8	C, 1, P	clay
6-18		10YR 6/1	2.5Y 6/3	F, 3, D	clay
			10YR 6/8	C, 1, P	clay

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)

Wetland Hydrology Present? Yes (No) (Circle)

Hydric Soils Present? Yes (No) (Circle)

Is this Sampling Point Within a Wetland? Yes (No) (Circle)

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: J. T. Myers Lock & Dam
Applicant/Owner: USACE
Investigator: B. McCoy, T. Lacoste

Date: 3-23-99
County: Posey
State: IN

Do Normal Circumstances exist on the site? (Yes) No
Is the site significantly disturbed (Atypical Situation)? Yes (No)
Is the area a potential Problem Area? Yes (No)
(If needed, explain on reverse.)

Community ID: Open field
Transect ID: 8
Plot ID: 1

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Ambrosia trifida	S/S	FACt
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 100%

Remarks: Open area with maple, cottonwood, and black willow surrounding the edges.

HYDROLOGY

✓ Recorded Data (Describe in Remarks):
- ✓ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water: N/A (in.)
Depth to Free Water in Pit: N/A (in.)
Depth to Saturated Soil: N/A (in.)

Wetland Hydrology Indicators:
Primary Indicators:
- N Inundated
- N Saturated in Upper 12 Inches
- Y Water Marks
- Y Drift Lines
- N Sediment Deposits
- N Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- N Oxidized Root Channels in Upper 12 Inches
- N Water-Stained Leaves
- ___ Local Soil Survey Data
- + FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name (Series and Phase): Nolin silt loam — Drainage Class: WD

Taxonomy (Subgroup): mesic Dystric Fluventic Eutrochrepts — Field Observations Confirm Mapped Type? (Yes) No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-18		10YR 4/2			silty clay loam

Hydric Soil Indicators:

- ___ Histosol
- N Histic Epipedon
- N Sulfidic Odor
- N Aquic Moisture Regime
- ___ Reducing Conditions
- N Gleyed or Low-Chroma Colors
- N Concretions
- N High Organic Content in Surface Layer in Sandy Soils
- N Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- Y Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? (Yes) No
Hydric Soils Present? Yes (No)

Is this Sampling Point Within a Wetland? (Circle) Yes (No)

Remarks:

Appendix B

PHOTOGRAPHS

Photograph 1. Soil profile at Sample Site T-3, P-1.

Photograph 2. Overview of Sample Site T-3, P-1 facing west.

Photograph 3. Soil profile at Sample Site T-3, P-2.

Photograph 4. Overview of Sample Site T-3, P-2 facing west.

Photograph 5. Overview of Sample Site T-3, P-3 facing west.

Photograph 6. Soil profile at Sample Site T-3, P-4.

Photograph 7. Overview of Sample Site T-3, P-4 facing North.

Photograph 8. Soil profile at Sample Site T-3, P-5.

Photograph 9. Overview of Sample Site T-3, P-5 facing North.

Photograph 10. Soil profile at Sample Site T-3, P-6.

Photograph 11. Overview of Sample Site T-3, P-6 facing west.

Photograph 12. Soil profile at Sample Site T-4, P-1.

Photograph 13. Overview of Sample Site T-4, P-1 facing North.

Photograph 14. Soil profile at Sample Site T-4, P-2.

Photograph 15. Overview of Sample Site T-4, P-2.

Photograph 16. Overview of Sample Site T-4, P-3 facing west.

Photograph 17. Red maple stand north of T-4, P-3 facing north.

Photograph 18. Soil profile at Sample Site T-5, P-1.

Photograph 19. Overview of Sample Site T-5, P-1 facing south.

Photograph 20. Soil profile at Sample Site T-5, P-2.

Photograph 21. Overview of Sample Site T-5, P-2 facing west.

Photograph 22. Soil profile at Sample Site T-6, P-1.

Photograph 23. Overview of Sample Site T-6, P-1.

Photograph 24. Soil profile at Sample Site T-6, P-2.

Photograph 25. Overview of Sample Site T-6, P-2.

Photograph 26. Soil profile at Sample Site T-8, P-1.

Photograph 27. Overview of Sample Site T-8, P-1.

Photograph 28. Soil profile at Sample Site T-7, P-1.

Photograph 29. Overview of Sample Site T-7, P-1.

Photograph 30. Soil profile at Sample Site T-1, P-1.

Photograph 31. Overview of Sample Site T-1, P-1.

Photograph 32. Soil profile of Sample Site T-1, P-2.

Photograph 33. Overview of Sample Site T-1, P-2 facing east.

Photograph 34. Soil profile at Sample Site T-1, P-3.

Photograph 35. Overview of Sample Site T-1, P-3 facing west.

J.T. Myers Locks Improvements

Part A-5. Wildlife Habitat Evaluation

J.T. Myers Locks and Dam
Posey County, Indiana
Wildlife Habitat Evaluation

INTRODUCTION

G.E.C., Inc. (GEC) is currently under contract with the Louisville District, U.S. Army Corps of Engineers, to prepare a Site Specific Environmental Impact Assessment (EIA) of the proposed expansion of the northern-most existing lock at the J.T. Myers Locks and Dam, located on the Ohio River at approximately River Mile 846. The extension of the 600-foot lock will produce approximately 500,000 cubic yards of dredge material. The purpose of the EIA is to identify potential impacts to wetlands, threatened and endangered species, and other biological resources, as well as identify concept-level costs associated with disposal of this dredge material, and restoration/mitigation projects.

In order to quantify the impacts to terrestrial habitat associated with the proposed disposal of dredge material at each of the proposed disposal sites, GEC conducted a habitat analysis for each of the proposed alternatives using either the Habitat Evaluation Procedures (HEP) or the Waterfowl Assessment Methodology. The purpose of this report is to present the findings of the habitat evaluation and compare the impacts between each alternative to determine the most beneficial alternative in regards to wildlife habitat.

PROPOSED ALTERNATIVES

Construction of this project will generate approximately 500,000 cubic yards of dredge material (clay sand, and silt) which will require disposal. Construction activities would also include removal of an approximate 2,100-foot long portion of the right descending bank (100-foot wide with the exception of the first and last 300 feet which is 50-foot wide) downstream of the locks and dams to improve lower approach access, construction of an access road, and construction of a temporary staging area. Four disposal alternatives are being considered: (1) On-Site Disposal; (2) Off-Site Disposal on State Owned Lands; (3) Off-Site Disposal on Private Property; and (4) No-Action. Within each of the three action alternatives, two alternate disposal plans were considered, contemporary (spread out material to the extent possible without impacting wetlands or other critical habitat), and beneficial use for environmental restoration. The following subsections describe each alternative disposal site and alternative disposal design.

Alternative 1. On-Site Disposal (Preferred Alternative)

On-site disposal would be confined primarily to the southern portion of the approximately 400-acre site adjacent to the existing J.T. Myers Locks and Dam. The habitats present within the proposed disposal areas on-site include an open prairie, ash/hackberry scrub shrub, and frequently maintained open grassland. The prairie was established by the USACE in partnership with the Indiana Department of Natural Resources as a restoration project under Section 1135 of the Water Resources

Development Act of 1986. It is made up of a mixture of native prairie grasses and range plants. It is easily recognized by the presence of little and big bluestem as well as other annuals and perennials.

The ash/hackberry scrub habitat is adjacent to the maintained clearings and prairie areas. Species composition within this habitat includes American elm, hackberry and green ash saplings with a dense understory of leadplant (*Amorpha fruticosa*), poison ivy, and various perennials and annuals. It appears that these areas may have been cleared for agricultural use prior to Corps ownership.

Based on a wetland delineation performed in May 1999 (Appendix A), no wetlands are present within the proposed on-site disposal area.

Contemporary Design. Under this alternative disposal design, approximately 500,000 cubic yards of material would be deposited over 20.4 acres of prairie, 69.0 acres of frequently maintained openland, and approximately 11 acres of scrub shrub habitat. Upon project completion, the prairie would be restored using the original project specifications and the scrub shrub area would be re-planted using a mixture of indigenous bottomland hardwood species. The open area not currently in scrub shrub or prairie would be allowed to revegetate naturally.

Beneficial Use for Environmental Restoration. Originally it was proposed that the dredge material be used to construct a series of levees throughout the site to create greentree reservoirs for waterfowl management. However, after a thorough on-site reconnaissance it was determined that a majority of the site currently functions as a greentree reservoir through the management of a water control structure in the southwest portion of the site along with a series of existing natural levees and man-made roads on the site. Further, it was discussed that the impacts associated with construction of levees would not justify the benefits gained through creation of a greentree reservoir in this area. Therefore, this alternative disposal design was eliminated from further consideration.

Alternative 2. Off-Site Disposal On State Owned Lands

Indiana Department of Natural Resources (IDNR) owns an approximately 143-acre tract located northeast of Hovey Lake. This area is currently under an agriculture outlease and is planted in row crops including soybeans and corn, depending on the market and on-site conditions. Portions of this area undergo periodic flooding.

Contemporary Design. Under this alternative disposal design, the area would receive approximately 500,000 cubic yards of material. The material would be evenly spread to raise the elevation approximately two feet and the area would continue to be farmed.

Beneficial Use for Environmental Restoration. Under this alternative disposal design, a series of small levees would be constructed to create cells to be managed as moist soil units for waterfowl management. The water levels would be controlled by a series of control structures, and they would be inundated to approximately 12 inches beginning in the fall and gradually released by the early spring. Specific location and design of levees, and the number of water-control structures required would be generated at a later date once contour maps of the area are developed. It is not anticipated that construction of the levees would utilize the entire amount of material generated (500,000 cubic yards), and therefore this method would include some of the contemporary design.

Alternative 3. Off-Site Disposal On Private Property

The USACE has selected an alternate disposal site for evaluation that is adjacent to the existing lock and dam site and borders State owned lands that are managed by IDNR. This approximately 467-acre tract contains a mixture of bottomland hardwoods and open agriculture fields.

Contemporary Design. Under the contemporary design the areas currently being farmed would receive approximately 500,000 cubic yards of material. The material would be evenly spread over approximately 263 acres (open agriculture land) to raise the elevation approximately one foot, and the area would continue to be farmed.

Beneficial Use for Environmental Restoration. Under this alternative, the areas currently being farmed would receive approximately 500,000 cubic yards of material. The material would be evenly spread over approximately 263 acres to raise the elevation approximately one foot and the area would be restored to bottomland hardwoods. The intent of the restoration would be to reduce forest fragmentation in the area and provide additional wildlife habitat. This would also provide a wildlife corridor to adjacent wooded tracts.

METHODOLOGY

Habitat Evaluation Procedures

Impacts incurred under Alternatives 1 and 3 were evaluated using HEP. This methodology was developed by the U. S. Fish and Wildlife Service in the early 1970s to rate the quality and quantity of habitat on a project site in order to determine the changes in habitat caused by the proposed project. Through the use of evaluation species and models for those species, a habitat suitability index was calculated for each evaluation species. This HSI was then multiplied by the acreage of habitat utilized by the individual species to yield habitat units (HU). A habitat unit represents one unit of area at optimum value for the evaluation species. These units then were used to compare the gains and losses in habitat caused by the implementation of the proposed project.

Normally an interagency HEP team consisting of individuals from state and federal wildlife agencies is formed prior to any field work to select the evaluation species and to provide assistance in performing the HEP. However, for the purpose of this study, no official HEP team was formed. Personnel with GEC selected the evaluation species and developed a data sheet for recording the necessary HEP data. The list of evaluation species selected for evaluation under Alternatives 1 and 3 along with a data sheet for recording the necessary data were presented to the Louisville District for approval prior to any field work. The species selected are as follows:

Wood Duck
Gray Squirrel
Mink
Yellow Warbler
Swamp Rabbit
Eastern Wild Turkey
Barred Owl
Downy Woodpecker

All six of the evaluation species were utilized in evaluating the impacts of the proposed spoil disposal under Alternative 1. Since the project site for Alternative 3 is currently farmland and the proposal was to restore the site to bottomland hardwoods under the environmental restoration design, the gray squirrel, barred owl, and downy woodpecker were determined to be the only species capable of adequately evaluating the habitat impacts of the proposed project. There were no other evaluation species utilized under Alternative 3.

Prior to any field sampling, the cover types on the proposed site for Alternative 1 were delineated to determine the location of the sample plots. A total of 19 sample plots were randomly placed throughout the cover types to estimate the quality of the wildlife habitat on the site. Since the proposed site for Alternative 3 is currently farmland, there were no sample plots taken at this site.

Waterfowl Assessment Methodology

Under the Alternative 2 Beneficial Use for Environmental Restoration design it was proposed that a system of levees be constructed with the dredged material to create several cells on the site that would be managed as moist soil units for waterfowl management. Therefore, to evaluate the habitat changes incurred through Alternative 2, a Waterfowl Assessment Methodology established by the U.S. Fish and Wildlife Service for the Yazoo Backwater Project was utilized instead of the traditional HEP. This method was developed to determine the wintering waterfowl carrying capacity of a site according to the land use, hydrology and food availability during the 120-day wintering period for waterfowl (November 1 to February 28). This carrying capacity is expressed in duck-use-days (DUDs), which represents the capacity of the available forage to meet the energy requirements of one duck for one day per acre. Even though the methodology was developed for another project, it was assumed that the quality and quantity of food available in the specific habitats on the project site would be similar to those discussed in the Yazoo Backwater project.

Within the description of this assessment methodology, the average kilograms of forage per acre and the energy per kilogram of forage were provided for various agricultural fields, fallow fields and various stocking rates within bottomland hardwood forests. The amount of forage available per acre of a specific habitat was multiplied by the energy per kilogram of forage then divided by the energy requirements of an average size mallard to determine the DUDs per acre available within that specific habitat. This product is then multiplied by the acreage of the habitat to give the total DUDs available within that habitat. The DUDs for each habitat within the project site were then summed to give the total DUDs available at the project site.

DATA COLLECTION

Habitat Evaluation Procedures

All data were recorded on standard data sheets developed for this study. To ensure adequate sample size, data were collected within nested $1/10^{th}$ and $1/5^{th}$-acre plots as specified on the data sheet. The center of each plot was marked by orange flagging, and additional flags were set at the $1/10^{th}$ and $1/5^{th}$-acre plot boundaries at 0, 90, 180, and 270 degrees for reference to plot boundaries. The tally person at plot center had a logger's tape to further confirm plot limits when needed. Estimates of cover were determined by use of a densitometer. At each plot, ten cover readings were taken systematically using the plot center and located the eight flags at the plot boundaries, and the tenth reading was taken at a random point determined by the toss of a stick.

Heights were measured with a hypsometer and a tape measure (herbaceous), and diameters were measured with a D-tape. The majority of "count data", *such as number hard mast trees 10 inches*, were confirmed by other members of the sampling crew, and all "consensus data", such as *percent of water surface covered by potential brood cover*, were discussed and agreed upon by all crew members. Data for the variables, such as distance between cover types and distance to forest or tree savannah cover type, were obtained from quadrangle maps or pacing. The percent of year with water present, was estimated from field observations and hydrologic data provided by the Corps.

Raw data were entered into a spreadsheet and in this process, all data sheets were reviewed for completeness and consistency. Raw data were converted into the correct units corresponding with variables in the evaluation species models then sorted by cover type and averaged within these categories.

Waterfowl Assessment Methodology

The data needed to evaluate habitat with the Waterfowl Assessment Methodology include land use, hydrology, and available food at the project site during the 120-day wintering period. All of these data needs were provided with existing data; therefore, no field data collection was necessary.

DATA ANALYSIS

Habitat Evaluation Procedures

The Data were analyzed using the USFWS HEP software. Summary field data were first used to calculate suitability indices (SI) for each variable and then used to calculate the habitat suitability indices (HSI) for each evaluation species under the existing conditions. These data were summarized and used to estimate the future SIs for each species variable under each alternative at the designated target years. Once these estimations were complete, the SIs were used to calculate the HSI values for each evaluation species under future conditions at the designated target years.

Acreage of each cover type sampled and acreage of the areas to be impacted were obtained from a computerized drawing of the sites with the necessary features delineated. The acreage used in the HEP analysis for each evaluation species is presented in Table 1.

Only acreage for the Environmental Restoration Design of the Off-Site Privately owned land was given because the No Action and the Contemporary Design called for the property to continue as farmland which provides no habitat for the evaluation species. The other five evaluation species were not used in the HEP analysis of the Off-site Disposal on Private land because these species required other habitat types besides the habitat existing on the project site.

Table 1. Acres Used for HEP Analysis of Alternatives 1 and 3 Along With Alternative Designs for Each of the J.T. Myers Locks and Dam Extension Project

Proposed Alternatives	Target Years				
	0	1	5	25	51
On-Site Disposal No-Action					
Wood Duck	142.3	142.3	142.3	142.3	142.3
Gray Squirrel	181.5	181.5	181.5	217.2	217.2
Mink	212.0	212.0	212.0	212.0	212.0
Yellow Warbler	26.4	26.4	26.4	26.4	26.4
Swamp Rabbit	201.5	201.5	201.5	201.5	201.5
Eastern Wild Turkey	319.1	319.1	319.1	319.1	319.1
On-Site Disposal Environmental Restoration Design					
Wood Duck	142.3	142.3	142.3	142.3	142.3
Gray Squirrel	181.5	181.5	181.5	227.2	227.2
Mink	212.0	212.0	212.0	212.0	212.0
Yellow Warbler	26.4	22.3	22.3	22.3	22.3
Swamp Rabbit	201.5	201.5	201.5	201.5	201.5
Eastern Wild Turkey	319.1	209.2	319.1	319.1	319.1
Off-Site Disposal Environmental Restoration Design – Private Land					
Gray Squirrel	0	263.0	263.0	263.0	263.0
Barred Owl	0	263.0	263.0	263.0	263.0
Downy Woodpecker	0	263.0	263.0	263.0	263.0

Source: G.E.C., Inc.

Waterfowl Assessment Methodology

The project site for Alternative 2 consists of 143 acres of farmland. This farmland is divided into three fields that have annual rotated plantings of corn and soybeans. In the fall the corn fields are harvested leaving 25% of the corn standing for waterfowl food. The soybeans are harvested and winter wheat is planted without tillage. It was decided that since winter wheat is planted, the soybeans would not be readily available to wintering waterfowl. Therefore, it was assumed that only the corn fields would provide forage for the wintering waterfowl.

In conversations with the manager at the Indiana Department of Natural Resources' Hovey Lake, it was determined that annual flood events on the project site vary from a few inches to several feet. Considering this information, it was assumed that the project site would flood at least once during the wintering period to a depth suitable to dabbling ducks. It was further assumed that on an average, half of the project site would be planted in corn annually. Using these assumptions, the acreage of available foraging habitat occurring on the project site under the existing conditions was calculated to be approximately 71.5 acres of corn fields which provide 1272 DUDs per acre. If the Contemporary Design is implemented the elevation of the property would be raised approximately two feet which would reduce the acreage flooded to a suitable depth for foraging to approximately 35.75 acres of corn fields. Under the Environmental Restoration design the project site would provide 143 acres of moist soil/fallow field habitat which would provide approximately 1562 DUDs per acre.

RESULTS

Habitat Evaluation Procedures

The HEP accounting software produces results in a series of forms summarizing first, habitat units by species for each alternative and target year; second, a combination of area, HSI and HUs to yield Average Annual Habitat Units (AAHUs) by species; and third, a summary of net change in AAHUs by species over the life of the project (see Attachment A, On-Site Disposal, and Attachment B, Off-Site Disposal Private). HEP results for different alternatives are readily comparable in the form of AAHUs reflecting the average gain or loss of habitat per year over the life of the project. AAHU results of the habitat evaluation are presented in Table 2.

Table 2. Changes in Average Annual Habitat Units Resulting From the Proposed J.T. Myers Locks and Dam Expansion Project

Alternatives	No-Action	With-Action	Net Change
Alternative 1 – On-Site Disposal Environmental Restoration Design	677.03	682.79	5.76
Alternative 2 – Off-Site Disposal Contemporary Design – Private Land	0.0	0.0	0.0
Alternative 2 – Off-Site Disposal Environmental Restoration Design – Private Land	0.0	361.68	361.68

Source: G.E.C., Inc.

Waterfowl Assessment Methodology

Currently the project site provides approximately 90,948 DUDs. With the Contemporary Design less of the site would be suitable for waterfowl foraging; therefore, providing only 45474 DUDs. If the Environmental Restoration Design is implemented the available habitat would have a higher quality along with more available habitat which would provide a total of 223,423 DUDs.

Attachment A

On-Site Disposal

Form B: Habitat Units Date: 07/12/1999

Study Name: JTM ON-SITE DISPOSAL
Action: PA 1 (without project) WITHOUT PROJECT
Target Year: 0

Evaluation ID#	Species Name	Area of Habitat	Habitat Suitability Index	Habitat Units
1	WOOD DUCK	142.30	0.90	128.07
2	GRAY SQUIRREL	181.50	0.25	45.38
3	YELLOW WARBLER	26.40	0.77	20.33
4	MINK	212.00	0.78	165.36
5	SWAMP RABBIT	201.50	0.59	118.88
6	EASTERN WILD TURKEY	319.10	0.46	146.79

Form B: Habitat Units Date: 07/12/1999

Study Name: JTM ON-SITE DISPOSAL
Action: PA 1 (without project) WITHOUT PROJECT
Target Year: 1

Evaluation ID#	Species Name	Area of Habitat	Habitat Suitability Index	Habitat Units
1	WOOD DUCK	142.30	0.90	128.07
2	GRAY SQUIRREL	181.50	0.25	45.38
3	YELLOW WARBLER	26.40	0.77	20.33
4	MINK	212.00	0.78	165.36
5	SWAMP RABBIT	201.50	0.59	118.88
6	EASTERN WILD TURKEY	319.10	0.46	146.79

Form B: Habitat Units Date: 07/12/1999

Study Name: JTM ON-SITE DISPOSAL
Action: PA 1 (without project) WITHOUT PROJECT
Target Year: 5

Evaluation ID#	Species Name	Area of Habitat	Habitat Suitability Index	Habitat Units
1	WOOD DUCK	142.30	0.90	128.07
2	GRAY SQUIRREL	181.50	0.30	54.45
3	YELLOW WARBLER	26.40	0.84	22.18
4	MINK	212.00	0.78	165.36
5	SWAMP RABBIT	201.50	0.59	118.88
6	EASTERN WILD TURKEY	319.10	0.46	146.79

Form B: Habitat Units Date: 07/12/1999

Study Name: JTM ON-SITE DISPOSAL
Action: PA 1 (without project) WITHOUT PROJECT
Target Year: 25

Evaluation ID#	Species Name	Area of Habitat	Habitat Suitability Index	Habitat Units
1	WOOD DUCK	142.30	0.90	128.07
2	GRAY SQUIRREL	217.20	0.35	76.02
3	YELLOW WARBLER	26.40	0.95	25.08
4	MINK	212.00	0.78	165.36
5	SWAMP RABBIT	201.50	0.47	94.71
6	EASTERN WILD TURKEY	319.10	0.55	175.51

Form B: Habitat Units Date: 07/12/1999

Study Name: JTM ON-SITE DISPOSAL
Action: PA 1 (without project) WITHOUT PROJECT
Target Year: 51

Evaluation ID#	Species Name	Area of Habitat	Habitat Suitability Index	Habitat Units
1	WOOD DUCK	142.30	0.90	128.07
2	GRAY SQUIRREL	217.20	0.50	108.60
3	YELLOW WARBLER	26.40	0.95	25.08
4	MINK	212.00	0.78	165.36
5	SWAMP RABBIT	201.50	0.47	94.71
6	EASTERN WILD TURKEY	319.10	0.55	175.51

Form B: Habitat Units Date: 07/12/1999

Study Name: JTM ON-SITE DISPOSAL
Action: PA 2 (with project) ON-SITE DISPOSAL
Target Year: 0

Evaluation ID#	Species Name	Area of Habitat	Habitat Suitability Index	Habitat Units
1	WOOD DUCK	142.30	0.90	128.07
2	GRAY SQUIRREL	181.50	0.25	45.38
3	YELLOW WARBLER	26.40	0.77	20.33
4	MINK	212.00	0.78	165.36
5	SWAMP RABBIT	201.50	0.59	118.88
6	EASTERN WILD TURKEY	319.10	0.46	146.79

Form B: Habitat Units Date: 07/12/1999

Study Name: JTM ON-SITE DISPOSAL
Action: PA 2 (with project) ON-SITE DISPOSAL
Target Year: 1

Evaluation ID#	Species Name	Area of Habitat	Habitat Suitability Index	Habitat Units
1	WOOD DUCK	142.30	0.90	128.07
2	GRAY SQUIRREL	181.50	0.25	45.38
3	YELLOW WARBLER	22.30	0.77	17.17
4	MINK	212.00	0.78	165.36
5	SWAMP RABBIT	201.50	0.59	118.88
6	EASTERN WILD TURKEY	209.20	0.63	131.80

Form B: Habitat Units Date: 07/12/1999

Study Name: JTM ON-SITE DISPOSAL
Action: PA 2 (with project) ON-SITE DISPOSAL
Target Year: 5

Evaluation ID#	Species Name	Area of Habitat	Habitat Suitability Index	Habitat Units
1	WOOD DUCK	142.30	0.90	128.07
2	GRAY SQUIRREL	181.50	0.30	54.45
3	YELLOW WARBLER	22.30	0.84	18.73
4	MINK	212.00	0.78	165.36
5	SWAMP RABBIT	201.50	0.59	118.88
6	EASTERN WILD TURKEY	319.10	0.46	146.79

Form B: Habitat Units Date: 07/12/1999

Study Name: JTM ON-SITE DISPOSAL
Action: PA 2 (with project) ON-SITE DISPOSAL
Target Year: 25

Evaluation ID#	Species Name	Area of Habitat	Habitat Suitability Index	Habitat Units
1	WOOD DUCK	142.30	0.90	128.07
2	GRAY SQUIRREL	227.20	0.38	86.34
3	YELLOW WARBLER	22.30	0.95	21.18
4	MINK	212.00	0.78	165.36
5	SWAMP RABBIT	201.50	0.47	94.71
6	EASTERN WILD TURKEY	319.10	0.56	178.70

Form B: Habitat Units Date: 07/12/1999

Study Name: JTM ON-SITE DISPOSAL
Action: PA 2 (with project) ON-SITE DISPOSAL
Target Year: 51

Evaluation ID#	Species Name	Area of Habitat	Habitat Suitability Index	Habitat Units
1	WOOD DUCK	142.30	0.90	128.07
2	GRAY SQUIRREL	227.20	0.53	120.42
3	YELLOW WARBLER	22.30	0.95	21.18
4	MINK	212.00	0.78	165.36
5	SWAMP RABBIT	201.50	0.47	94.71
6	EASTERN WILD TURKEY	319.10	0.56	178.70

Form C: Average Annual Habitat Units Date: 07/12/1999

Study Name: JTM ON-SITE DISPOSAL
Action: PA 1 (without project) WITHOUT PROJECT
Life of Project: 50
Evaluation Species: 1 WOOD DUCK AAHU's: 130.63

Target Year	Area of Habitat	Habitat Suitability Index	Habitat Units
0	142.30	0.90	128.07
1	142.30	0.90	128.07
5	142.30	0.90	128.07
25	142.30	0.90	128.07
51	142.30	0.90	128.07

Form C: Average Annual Habitat Units Date: 07/12/1999

Study Name: JTM ON-SITE DISPOSAL
Action: PA 1 (without project) WITHOUT PROJECT
Life of Project: 50
Evaluation Species: 2 GRAY SQUIRREL AAHU's: 78.88

Target Year	Area of Habitat	Habitat Suitability Index	Habitat Units
0	181.50	0.25	45.38
1	181.50	0.25	45.38
5	181.50	0.30	54.45
25	217.20	0.35	76.02
51	217.20	0.50	108.60

Form C: Average Annual Habitat Units Date: 07/12/1999

Study Name: JTM ON-SITE DISPOSAL
Action: PA 1 (without project) WITHOUT PROJECT
Life of Project: 50
Evaluation Species: 3 YELLOW WARBLER AAHU's: 24.60

Target Year	Area of Habitat	Habitat Suitability Index	Habitat Units
0	26.40	0.77	20.33
1	26.40	0.77	20.33
5	26.40	0.84	22.18
25	26.40	0.95	25.08
51	26.40	0.95	25.08

Form C: Average Annual Habitat Units Date: 07/12/1999

Study Name: JTM ON-SITE DISPOSAL
Action: PA 1 (without project) WITHOUT PROJECT
Life of Project: 50
Evaluation Species: 4 MINK AAHU's: 168.67

Target Year	Area of Habitat	Habitat Suitability Index	Habitat Units
0	212.00	0.78	165.36
1	212.00	0.78	165.36
5	212.00	0.78	165.36
25	212.00	0.78	165.36
51	212.00	0.78	165.36

Form C: Average Annual Habitat Units Date: 07/12/1999

Study Name: JTM ON-SITE DISPOSAL
Action: PA 1 (without project) WITHOUT PROJECT
Life of Project: 50
Evaluation Species: 5 SWAMP RABBIT AAHU's: 103.85

Target Year	Area of Habitat	Habitat Suitability Index	Habitat Units
0	201.50	0.59	118.88
1	201.50	0.59	118.88
5	201.50	0.59	118.88
25	201.50	0.47	94.70
51	201.50	0.47	94.70

Form C: Average Annual Habitat Units Date: 07/12/1999

Study Name: JTM ON-SITE DISPOSAL
Action: PA 1 (without project) WITHOUT PROJECT
Life of Project: 50
Evaluation Species: 6 EASTERN WILD TURKEY AAHU's: 170.40

Target Year	Area of Habitat	Habitat Suitability Index	Habitat Units
0	319.10	0.46	146.79
1	319.10	0.46	146.79
5	319.10	0.46	146.79
25	319.10	0.55	175.51
51	319.10	0.55	175.51

Form C: Average Annual Habitat Units Date: 07/12/1999

Study Name: JTM ON-SITE DISPOSAL
Action: PA 2 (with project) ON-SITE DISPOSAL
Life of Project: 50
Evaluation Species: 1 WOOD DUCK AAHU's: 130.63

Target Year	Area of Habitat	Habitat Suitability Index	Habitat Units
0	142.30	0.90	128.07
1	142.30	0.90	128.07
5	142.30	0.90	128.07
25	142.30	0.90	128.07
51	142.30	0.90	128.07

Form C: Average Annual Habitat Units Date: 07/12/1999

Study Name: JTM ON-SITE DISPOSAL
Action: PA 2 (with project) ON-SITE DISPOSAL
Life of Project: 50
Evaluation Species: 2 GRAY SQUIRREL AAHU's: 86.57

Target Year	Area of Habitat	Habitat Suitability Index	Habitat Units
0	181.50	0.25	45.38
1	181.50	0.25	45.38
5	181.50	0.30	54.45
25	227.20	0.38	86.34
51	227.20	0.53	120.42

Form C: Average Annual Habitat Units Date: 07/12/1999

Study Name: JTM ON-SITE DISPOSAL
Action: PA 2 (with project) ON-SITE DISPOSAL
Life of Project: 50
Evaluation Species: 3 YELLOW WARBLER AAHU's: 20.81

Target Year	Area of Habitat	Habitat Suitability Index	Habitat Units
0	26.40	0.77	20.33
1	22.30	0.77	17.17
5	22.30	0.84	18.73
25	22.30	0.95	21.18
51	22.30	0.95	21.18

Form C: Average Annual Habitat Units Date: 07/12/1999

Study Name: JTM ON-SITE DISPOSAL
Action: PA 2 (with project) ON-SITE DISPOSAL
Life of Project: 50
Evaluation Species: 4 MINK AAHU's: 168.67

Target Year	Area of Habitat	Habitat Suitability Index	Habitat Units
0	212.00	0.78	165.36
1	212.00	0.78	165.36
5	212.00	0.78	165.36
25	212.00	0.78	165.36
51	212.00	0.78	165.36

Form C: Average Annual Habitat Units Date: 07/12/1999

Study Name: JTM ON-SITE DISPOSAL
Action: PA 2 (with project) ON-SITE DISPOSAL
Life of Project: 50
Evaluation Species: 5 SWAMP RABBIT AAHU's: 103.85

Target Year	Area of Habitat	Habitat Suitability Index	Habitat Units
0	201.50	0.59	118.88
1	201.50	0.59	118.88
5	201.50	0.59	118.88
25	201.50	0.47	94.70
51	201.50	0.47	94.70

Form C: Average Annual Habitat Units Date: 07/12/1999

Study Name: JTM ON-SITE DISPOSAL
Action: PA 2 (with project) ON-SITE DISPOSAL
Life of Project: 50
Evaluation Species: 6 EASTERN WILD TURKEY AAHU's: 172.26

Target Year	Area of Habitat	Habitat Suitability Index	Habitat Units
0	319.10	0.46	146.79
1	209.20	0.63	131.80
5	319.10	0.46	146.79
25	319.10	0.56	178.70
51	319.10	0.56	178.70

Form D: Net Change in AAHU's Date: 07/12/1999

Study Name: JTM ON-SITE DISPOSAL
Action: PA 2 (with project) ON-SITE DISPOSAL
Compared To: PA 1 (without project) WITHOUT PROJECT
Life of Project: 50

Evaluation Species ID#	Name	AAHU's With Action	AAHU's Without Action	Net Change
1	WOOD DUCK	130.63	130.63	0.00
2	GRAY SQUIRREL	86.57	78.88	7.69
3	YELLOW WARBLER	20.81	24.60	-3.79
4	MINK	168.67	168.67	0.00
5	SWAMP RABBIT	103.85	103.85	0.00
6	EASTERN WILD TURKEY	172.26	170.40	1.86

Attachment B

Off-Site Disposal Private

Form B: Habitat Units Date: 07/12/1999

Study Name: JTM OFF-SITE DISPOSAL PRIVATE
Action: PA 1 (without project) WITHOUT DISPOSAL
Target Year: 0

Evaluation ID#	Species Name	Area of Habitat	Habitat Suitability Index	Habitat Units
1	GRAY SQUIRREL	0.00	0.00	0.00
2	BARRED OWL	0.00	0.00	0.00
3	DOWNY WOODPECKER	0.00	0.00	0.00

Form B: Habitat Units Date: 07/12/1999

Study Name: JTM OFF-SITE DISPOSAL PRIVATE
Action: PA 1 (without project) WITHOUT DISPOSAL
Target Year: 1

Evaluation ID#	Species Name	Area of Habitat	Habitat Suitability Index	Habitat Units
1	GRAY SQUIRREL	0.00	0.00	0.00
2	BARRED OWL	0.00	0.00	0.00
3	DOWNY WOODPECKER	0.00	0.00	0.00

Form B: Habitat Units Date: 07/12/1999

Study Name: JTM OFF-SITE DISPOSAL PRIVATE
Action: PA 1 (without project) WITHOUT DISPOSAL
Target Year: 5

Evaluation ID#	Species Name	Area of Habitat	Habitat Suitability Index	Habitat Units
1	GRAY SQUIRREL	0.00	0.00	0.00
2	BARRED OWL	0.00	0.00	0.00
3	DOWNY WOODPECKER	0.00	0.00	0.00

Form B: Habitat Units Date: 07/12/1999

Study Name: JTM OFF-SITE DISPOSAL PRIVATE
Action: PA 1 (without project) WITHOUT DISPOSAL
Target Year: 25

Evaluation ID#	Species Name	Area of Habitat	Habitat Suitability Index	Habitat Units
1	GRAY SQUIRREL	0.00	0.00	0.00
2	BARRED OWL	0.00	0.00	0.00
3	DOWNY WOODPECKER	0.00	0.00	0.00

Form B: Habitat Units Date: 07/12/1999

Study Name: JTM OFF-SITE DISPOSAL PRIVATE
Action: PA 1 (without project) WITHOUT DISPOSAL
Target Year: 51

Evaluation ID#	Species Name	Area of Habitat	Habitat Suitability Index	Habitat Units
1	GRAY SQUIRREL	0.00	0.00	0.00
2	BARRED OWL	0.00	0.00	0.00
3	DOWNY WOODPECKER	0.00	0.00	0.00

Form B: Habitat Units Date: 07/12/1999

Study Name: JTM OFF-SITE DISPOSAL PRIVATE
Action: PA 2 (with project) CONTEMPORARY DESIGN
Target Year: 0

Evaluation ID#	Species Name	Area of Habitat	Habitat Suitability Index	Habitat Units
1	GRAY SQUIRREL	0.00	0.00	0.00
2	BARRED OWL	0.00	0.00	0.00
3	DOWNY WOODPECKER	0.00	0.00	0.00

Form B: Habitat Units Date: 07/12/1999

Study Name: JTM OFF-SITE DISPOSAL PRIVATE
Action: PA 2 (with project) CONTEMPORARY DESIGN
Target Year: 1

Evaluation ID#	Species Name	Area of Habitat	Habitat Suitability Index	Habitat Units
1	GRAY SQUIRREL	0.00	0.00	0.00
2	BARRED OWL	0.00	0.00	0.00
3	DOWNY WOODPECKER	0.00	0.00	0.00

Form B: Habitat Units Date: 07/12/1999

Study Name: JTM OFF-SITE DISPOSAL PRIVATE
Action: PA 2 (with project) CONTEMPORARY DESIGN
Target Year: 5

Evaluation ID#	Species Name	Area of Habitat	Habitat Suitability Index	Habitat Units
1	GRAY SQUIRREL	0.00	0.00	0.00
2	BARRED OWL	0.00	0.00	0.00
3	DOWNY WOODPECKER	0.00	0.00	0.00

Form B: Habitat Units Date: 07/12/1999

Study Name: JTM OFF-SITE DISPOSAL PRIVATE
Action: PA 2 (with project) CONTEMPORARY DESIGN
Target Year: 25

Evaluation ID#	Species Name	Area of Habitat	Habitat Suitability Index	Habitat Units
1	GRAY SQUIRREL	0.00	0.00	0.00
2	BARRED OWL	0.00	0.00	0.00
3	DOWNY WOODPECKER	0.00	0.00	0.00

Form B: Habitat Units Date: 07/12/1999

Study Name: JTM OFF-SITE DISPOSAL PRIVATE
Action: PA 2 (with project) CONTEMPORARY DESIGN
Target Year: 51

Evaluation ID#	Species Name	Area of Habitat	Habitat Suitability Index	Habitat Units
1	GRAY SQUIRREL	0.00	0.00	0.00
2	BARRED OWL	0.00	0.00	0.00
3	DOWNY WOODPECKER	0.00	0.00	0.00

Form B: Habitat Units Date: 07/12/1999

Study Name: JTM OFF-SITE DISPOSAL PRIVATE
Action: PA 3 (with project) ENVIR. RESTORATION
Target Year: 0

Evaluation ID#	Species Name	Area of Habitat	Habitat Suitability Index	Habitat Units
1	GRAY SQUIRREL	0.00	0.00	0.00
2	BARRED OWL	0.00	0.00	0.00
3	DOWNY WOODPECKER	0.00	0.00	0.00

Form B: Habitat Units Date: 07/12/1999

Study Name: JTM OFF-SITE DISPOSAL PRIVATE
Action: PA 3 (with project) ENVIR. RESTORATION
Target Year: 1

Evaluation ID#	Species Name	Area of Habitat	Habitat Suitability Index	Habitat Units
1	GRAY SQUIRREL	263.00	0.00	0.00
2	BARRED OWL	263.00	0.00	0.00
3	DOWNY WOODPECKER	263.00	0.00	0.00

Form B: Habitat Units Date: 07/12/1999

Study Name: JTM OFF-SITE DISPOSAL PRIVATE
Action: PA 3 (with project) ENVIR. RESTORATION
Target Year: 5

Evaluation ID#	Species Name	Area of Habitat	Habitat Suitability Index	Habitat Units
1	GRAY SQUIRREL	263.00	0.00	0.00
2	BARRED OWL	263.00	0.00	0.00
3	DOWNY WOODPECKER	263.00	0.00	0.00

Form B: Habitat Units Date: 07/12/1999

Study Name: JTM OFF-SITE DISPOSAL PRIVATE
Action: PA 3 (with project) ENVIR. RESTORATION
Target Year: 25

Evaluation ID#	Species Name	Area of Habitat	Habitat Suitability Index	Habitat Units
1	GRAY SQUIRREL	263.00	0.79	207.77
2	BARRED OWL	263.00	0.00	0.00
3	DOWNY WOODPECKER	263.00	0.60	157.80

Form B: Habitat Units Date: 07/12/1999

Study Name: JTM OFF-SITE DISPOSAL PRIVATE
Action: PA 3 (with project) ENVIR. RESTORATION
Target Year: 51

Evaluation ID#	Species Name	Area of Habitat	Habitat Suitability Index	Habitat Units
1	GRAY SQUIRREL	263.00	0.90	236.70
2	BARRED OWL	263.00	0.93	244.59
3	DOWNY WOODPECKER	263.00	1.00	263.00

Form C: Average Annual Habitat Units Date: 07/12/1999

Study Name: JTM OFF-SITE DISPOSAL PRIVATE
Action: PA 1 (without project) WITHOUT DISPOSAL
Life of Project: 50
Evaluation Species: 1 GRAY SQUIRREL AAHU's: 0.00

Target Year	Area of Habitat	Habitat Suitability Index	Habitat Units
0	0.00	0.00	0.00
1	0.00	0.00	0.00
5	0.00	0.00	0.00
25	0.00	0.00	0.00
51	0.00	0.00	0.00

Form C: Average Annual Habitat Units Date: 07/12/1999

Study Name: JTM OFF-SITE DISPOSAL PRIVATE
Action: PA 1 (without project) WITHOUT DISPOSAL
Life of Project: 50
Evaluation Species: 2 BARRED OWL AAHU's: 0.00

Target Year	Area of Habitat	Habitat Suitability Index	Habitat Units
0	0.00	0.00	0.00
1	0.00	0.00	0.00
5	0.00	0.00	0.00
25	0.00	0.00	0.00
51	0.00	0.00	0.00

Form C: Average Annual Habitat Units Date: 07/12/1999

Study Name: JTM OFF-SITE DISPOSAL PRIVATE
Action: PA 1 (without project) WITHOUT DISPOSAL
Life of Project: 50
Evaluation Species: 3 DOWNY WOODPECKER AAHU's: 0.00

Target Year	Area of Habitat	Habitat Suitability Index	Habitat Units
0	0.00	0.00	0.00
1	0.00	0.00	0.00
5	0.00	0.00	0.00
25	0.00	0.00	0.00
51	0.00	0.00	0.00

Form C: Average Annual Habitat Units Date: 07/12/1999

Study Name: JTM OFF-SITE DISPOSAL PRIVATE
Action: PA 2 (with project) CONTEMPORARY DESIGN
Life of Project: 50
Evaluation Species: 1 GRAY SQUIRREL AAHU's: 0.00

Target Year	Area of Habitat	Habitat Suitability Index	Habitat Units
0	0.00	0.00	0.00
1	0.00	0.00	0.00
5	0.00	0.00	0.00
25	0.00	0.00	0.00
51	0.00	0.00	0.00

Form C: Average Annual Habitat Units Date: 07/12/1999

Study Name: JTM OFF-SITE DISPOSAL PRIVATE
Action: PA 2 (with project) CONTEMPORARY DESIGN
Life of Project: 50
Evaluation Species: 2 BARRED OWL AAHU's: 0.00

Target Year	Area of Habitat	Habitat Suitability Index	Habitat Units
0	0.00	0.00	0.00
1	0.00	0.00	0.00
5	0.00	0.00	0.00
25	0.00	0.00	0.00
51	0.00	0.00	0.00

Form C: Average Annual Habitat Units Date: 07/12/1999

Study Name: JTM OFF-SITE DISPOSAL PRIVATE
Action: PA 2 (with project) CONTEMPORARY DESIGN
Life of Project: 50
Evaluation Species: 3 DOWNY WOODPECKER AAHU's: 0.00

Target Year	Area of Habitat	Habitat Suitability Index	Habitat Units
0	0.00	0.00	0.00
1	0.00	0.00	0.00
5	0.00	0.00	0.00
25	0.00	0.00	0.00
51	0.00	0.00	0.00

Form C: Average Annual Habitat Units Date: 07/12/1999

Study Name: JTM OFF-SITE DISPOSAL PRIVATE
Action: PA 3 (with project) ENVIR. RESTORATION
Life of Project: 50
Evaluation Species: 1 GRAY SQUIRREL AAHU's: 157.12

Target Year	Area of Habitat	Habitat Suitability Index	Habitat Units
0	0.00	0.00	0.00
1	263.00	0.00	0.00
5	263.00	0.00	0.00
25	263.00	0.79	207.77
51	263.00	0.90	236.70

Form C: Average Annual Habitat Units Date: 07/12/1999

Study Name: JTM OFF-SITE DISPOSAL PRIVATE
Action: PA 3 (with project) ENVIR. RESTORATION
Life of Project: 50
Evaluation Species: 2 BARRED OWL AAHU's: 63.59

Target Year	Area of Habitat	Habitat Suitability Index	Habitat Units
0	0.00	0.00	0.00
1	263.00	0.00	0.00
5	263.00	0.00	0.00
25	263.00	0.00	0.00
51	263.00	0.93	244.59

Form C: Average Annual Habitat Units Date: 07/12/1999

Study Name: JTM OFF-SITE DISPOSAL PRIVATE
Action: PA 3 (with project) ENVIR. RESTORATION
Life of Project: 50
Evaluation Species: 3 DOWNY WOODPECKER AAHU's: 140.97

Target Year	Area of Habitat	Habitat Suitability Index	Habitat Units
0	0.00	0.00	0.00
1	263.00	0.00	0.00
5	263.00	0.00	0.00
25	263.00	0.60	157.80
51	263.00	1.00	263.00

Form D: Net Change in AAHU's Date: 07/12/1999

Study Name: JTM OFF-SITE DISPOSAL PRIVATE
Action: PA 2 (with project) CONTEMPORARY DESIGN
Compared To: PA 1 (without project) WITHOUT DISPOSAL
Life of Project: 50

Evaluation Species ID#	Name	AAHU's With Action	AAHU's Without Action	Net Change
1	GRAY SQUIRREL	0.00	0.00	0.00
2	BARRED OWL	0.00	0.00	0.00
3	DOWNY WOODPECKER	0.00	0.00	0.00

Form D: Net Change in AAHU's Date: 07/12/1999

Study Name: JTM OFF-SITE DISPOSAL PRIVATE
Action: PA 3 (with project) ENVIR. RESTORATION
Compared To: PA 1 (without project) WITHOUT DISPOSAL
Life of Project: 50

Evaluation Species ID#	Name	AAHU's With Action	AAHU's Without Action	Net Change
1	GRAY SQUIRREL	157.12	0.00	157.12
2	BARRED OWL	63.59	0.00	63.59
3	DOWNY WOODPECKER	140.97	0.00	140.97